TEACHER METACOGNITION:

TEACHER AS CURRICULUM MAKER

WITH METACOGNITION AT THE CENTRE OF THE CLASSROOM

A Thesis Submitted to the Faculty of Education

in Partial Fulfilment of the Requirements for the

Degree of Master of Education

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by

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The undersigned certify that they have read, and recommended to the Senate for acceptance, a **MASTER'S THESIS** entitled:

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With Metacognition at the Centre of the Classroom

Submitted by: **Barbara Engel**

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Date: August 21, 2020

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Abstract

This study examined teacher awareness and teacher use of metacognitive practices in Canadian schools within Manitoba. The literature on teacher metacognition was limited because the majority of the literature centred on student metacognition and there was a call for more research regarding teacher metacognition. Four participants from urban and rural Manitoban schools, who had taken Reading Apprenticeship (RA) training, were interviewed in this narrative inquiry. This research created reflective stories through an analysis of transcripts of interviews. The Metacognitive Awareness Inventory (MAI) tool activated the participants' thinking, which helped to tune their reflections and the qualitative transcripts of the interviews, revealing trends in metacognitive vocabulary and reflective story. The primary research question was as follows: How does a teacher's understanding of metacognition influence the development of metacognitive skills and metacognitive conversations in classroom practices and routines?

The participants' reflections highlighted six threads of teacher practices, employing metacognitive strategies and metacognitive conversations in the classroom that helped to increase their perceptions of student achievement. The analysis wove together the three main ways teachers influence their students' metacognition, as found in the literature review, with the six threads of teacher metacognitive practices that were found in the current research. This created four unique tapestries revealing evidence that the teachers' understanding of metacognition can influence the development of metacognitive skills in their practices and routines.

The conclusion is that a teacher's awareness around metacognitive strategies did influence the participants' decision making within planning, classroom set up, and daily routines. Therefore, a teacher's understanding of metacognition can influence the development of

metacognitive skills and metacognitive conversations in classroom practices and routines. This research suggests that collaborative work around improving metacognitive strategies and conversations within the classroom would greatly benefit teachers' personal practical knowledge. Therefore, more training is recommended to help to solidify and improve the use of metacognitive strategies and conversations, increasing the personal practical knowledge of teachers. It is recommended that secondary institutions' courses and professional development opportunities within the school divisions of Manitoba build collaborative efficacy around implementing metacognitive strategies. This study's results have reinforced the fact that metacognitive strategies and conversations can be successful agents in helping students achieve higher quality standards from the teachers' perspectives. However, further research is recommended that includes teachers who have not taken RA training; more extensive studies are required to seek teachers' understanding of metacognitive practices.

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For my family:

My Mom and Dad, Fritz and Helen Engel, who are my roots, grounding me.

My two sons, Weslee and Owen, who are my inspiration and who bring my life happiness.

My husband, Rick Unruh, my forever companion who shares and creates our world of dreams.

Chapter One:

Background to the Research

This study explored how teachers' understandings (their abilities to make experience accessible by applying concepts and categories) of metacognition influences the development of metacognitive strategies and the metacognitive conversations within the classroom to deepen knowledge in their students. Chapter One introduces me as the researcher, explores the importance of teacher metacognition, explains the Reading Apprenticeship Framework (RAF) for the research, outlines the purpose and the question, states the significance to the field, defines my stance as narrative inquirer, explains the theoretical framework and the conceptual metaphor, defines relevant terms, and concludes with the thesis overview.

About the Researcher

When I came into the landscape of teaching English, I was not a novice teacher. However, I was novice in the subject area of English pedagogy and in knowing the best practices in the English language classroom. Professional development was occurring for me at every English department meeting, as I listened to my fellow colleagues discuss their choices and knowledge of literature. A reoccurring issue that stumped all around our proverbial professional development table was the increasing gap in the reading abilities of our students in our classrooms.

A high school colleague said, "I don't know how to teach children to read!"

I remember asking, "How do you learn new vocabulary yourself?"

The colleague answered, "I just do it! I don't know "how" I do it! I have always been able to read and comprehend what I read."

It was in this moment that I realized how I was different. I struggled to learn how to read. In grade three, I was almost two years behind my peers regarding my reading level. My formative reading years were full of tutors, extra lessons after school, and much time spent on homework with my father because I could not complete most work in the time allotted in the classroom. In short, I worked hard at developing reading skills, and many experts modelled strategies that have helped me to understand how I comprehended my reading. Now, after years of working in the English department, I realize that my struggles in reading are what made me aware of my reading habits, and that I have used metacognitive strategies all my life. Therefore, I am able to model and share these learning moments strategically with my students. Upon reflecting on the literature in Chapter Two, I believe that my story is not the norm. When I took the Reading Apprenticeship training, my reading struggles gave me a very vivid existing schema in which I built my professional development, creating pedagogy that transformed my teaching stance which focused on keeping metacognition at the centre of my classroom.

My focus on metacognition has extended into my leadership roles within my school division. As an informal literacy leader, and vice-principal, I held a broad view of reading that can be defined as looking at text (a poster, a commercial, a map, a graph, a school textbook, a novel, a poem, etc.) and making connections (text to self, text to text, and text to world). With this broad definition of reading comes a belief that subject-specific teachers have subject-specific criteria associated with unique reading strategies that need to be shared with students. My perspective as an administrator is that educational leaders must support teachers' development of metacognitive strategies and metacognitive conversations in the classroom.

The Importance of Teacher Metacognition

Metacognition is the process of thinking about one's thinking (Schoenbach, Green & Murphy, 2012, p. 26). It is a process that requires mindfulness and an awareness that is sometimes overlooked or not noted by individuals. Larson (2009) noted,

> Conscious awareness provides the possibility to the individual for analytic processing of information represented in it in a top down mode of information processing that is selective and can give direction and new sequencing of cognitive schemas/procedures/strategies for solving novel problems or for overcoming impasses in automatic processing due to conflict of response or error. (p. 137)

It is for this reason that a teachers' awareness of their metacognition is so important. If teachers are to be active agents of deeper understanding within their students, then the teachers' knowledge and awareness of metacognition is an essential factor when they make choices about best practices based on the responses they hear and read from their students. Understanding how teachers listen, and how they process students' demonstrations of understanding and then develop next steps for students, is crucial to student achievement. Hattie (2009) described learning as "spontaneous, individualistic, and often earned through effort. It is a timeworn, slow and gradual, fits-and-starts kind of process, which can have a flow of its own, but requires passion, patience, and attention to detail" from the teacher and the students (p. 2). Hattie developed this idea of learning as "the more the student becomes the teacher and the more the teacher becomes the learner, then the more successful are the outcomes" (p. 25). Thus, unveiling the mystery of what and how teachers are thinking can reveal reasoning and purposeful connections to their practices and next steps that encourage student success. Making the teachers' thinking visible through their use of metacognitive conversations and metacognitive

strategies with students is the focus of the RAF, and therefore the RAF has been selected to support the current study.

The Reading Apprenticeship Framework

The RAF "is an organizing paradigm for subject area teaching, one that enables students to approach challenging academic texts more strategically, confidently, and successfully" (Schoenbach et al., 2012, pp 2-3). The RAF uses the metacognitive conversation and other metacognitive strategies alongside Vygotsky's zone of proximal development: "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1979, p. 86). The metacognitive conversation and metacognitive strategies elicit this desired effect of empowering students to activate the tracking of their thinking. This study promotes a positive correlation between teachers' reflections on the use of metacognitive strategies and their perceptions of student achievement.

Research supports that every student has an individual growth rate, and multiple variables and factors can influence the rate in which students demonstrate growth: schooling, parenting, and socio-economic backgrounds (Hattie & Yates, 2014, p. 8). Hattie's 2009 meta-analysis indicated that implementing metacognitive strategies into the classroom had an effect size of 0.69, which places it high on the barometer of influences (pp. 188-189). Determining whether metacognitive conversation/strategies are making a difference in the success of our students is at the centre of this study. Therefore, developing an understanding of how teachers understand metacognition is imperative. It is a goal to maximize the growth rate/knowledge building by providing excellence in best practices used with students. Discovering more about teachers'

understanding of metacognition may influence instruction that leads students to recognize the power of metacognition which impacts their reading and their knowledge building. For this reason, the setting of the study was chosen in order to find participants who have participated in the professional development of the RAF, a framework that upholds the development of the metacognitive conversation within the classroom.

The Purpose and the Question

This study explored how the teachers' understanding of metacognition influenced the development of metacognitive strategies and the metacognitive conversation, as they implemented these practices into their classroom intending to develop more in-depth knowledge within their students. Because this study focused on metacognition, it was my goal to activate the participants' metacognitive voice, using the methodology of a narrative inquiry, which is outlined explicitly in Chapter Three. This study did not include the students' voices but looked at the teachers' perceptions of student achievement. This study centered on each teacher participant's voice to understand better how metacognitive conversations and metacognitive strategies impact a student's ability to build knowledge from the perspective of the teacher. The study explored whether a teacher's understanding of metacognitive conversations/strategies affected a teacher's perspective of knowledge building in students. This stance elicited the research question,

- How does a teacher's understanding of metacognition influence the development of metacognitive skills and metacognitive conversations in classroom practices and routines?

Subsequent questions were as follows:

- How does this awareness help to influence the teacher's decision making within planning, classroom set up, and daily routines?
- What evidence indicates that the teacher's understanding of metacognition is making a positive impact on the teacher's perception of student learning?

The point of this study was to examine how teachers' knowledge of metacognition will affect their perceptions of student achievement and therefore then guide the choices they make regarding how and why they teach or reteach.

The Significance to the Field

Knowing the impact of the metacognitive conversations/strategies provides support that can become a qualitative reflection, such that "students are able to catch up in critical reading skills if provided with additional, sustained instruction in small, focused instructional groups" (Torgesen, Scammacca, Boardman, & Roberts, 2008, p. 63). Therefore, the results of this study may have improved teaching methods, improved students' reading skills, and improved students' knowledge building. Thus, metacognitive conversations/strategies can be successful agents in helping students achieve higher quality standards.

The Researcher's Motivation

As a teacher who has taught at all levels from K-12, interested in literacy within all subjects, I observed how complicated the reading process is for many students and how this complicated task interferes with achievement and learning throughout elementary, middle and high school, causing self-doubt, self-loathing and negative reflection upon students' abilities. This lack of self-worth limits successes as students struggle to move forward and establish a position in a world where reading is highly valued and necessary. Struggling readers measure their sluggishness and hesitation against the rapid pace and fluency of their teachers, parents,

peers, and classmates. I have discovered that when I introduce metacognitive strategies and conversations to students while they are learning, they break through their barriers and gain knowledge through reading, regardless of the subject matter. Therefore, I decided to track the thinking of teachers as they embarked on making an impact on their students' reading and knowledge building process in various subject areas.

One may now imagine the nature of chaos (Galbraith, 2004), experienced by a learner knowing that multiple individuals uphold a status quo that reading is a skill everyone should attain before high school. What if teachers were more aware? Could their shift in listening and sharing change the students' literacy development and impact their learning?

It is apparent that "the need to continue to teach reading as students move up the grade levels and encounter increasingly complex academic material and tasks is now widely recognized" (Schoenbach, Greenleaf & Murphy, 2012, p. 18). While proficient readers practice and master reading skills with ease, struggling readers need to be taught reading strategies to keep up with classroom activities. Classrooms need to unleash the potential of reciprocal learning that can uphold the diversity within the classroom. Observations of the spectrum of readers (struggling reluctant readers and fluent confident readers) must motivate the teacher to explore how metacognitive conversations and strategies are the keys to developing students' skills, resulting in increased literacy and therefore deeper understanding by all students within the spectrum. During this research, I listened for how the metacognitive conversations sounded and how metacognitive strategies were used, and I wove those narratives together with my narrative inquiry voice. This research adds to the literature on teacher awareness around metacognition and its impact within the classroom.

Theoretical Framework

The RAF is used as a concrete structure within this research that upholds metacognitive strategies and conversations. The four participants had taken RAF training. The RAF model encourages gradual release: teacher demonstrating/modelling, leading to pairs/group sharing of knowledge/skill, leading to student independently employing metacognition to build new knowledge (Schoenbach, Greenleaf & Murphy, 2012, p. 132). The framework also provides research based on pedagogy that supports social-emotional learning with a four-dimension foundation: social dimension, personal dimension, cognitive dimension, and knowledge-building dimension. Further details are captured in Chapter Two's review of the literature.

Conceptual Metaphor

This study focused on teacher metacognition. My goal was to activate the participants' metacognitive voice, using the methodology of a narrative inquiry. As I read many articles for the literature review and then listened to my participants' many reflections, themes or strands started to develop. Instead of calling these themes or strands, I chose to reference them as threads. This study's conceptual metaphor is that of the teacher participants and me weaving unique tapestries that reveal how their metacognitive awareness influenced their personal practical knowledge. I used this terminology because it enabled me to think of the threads from the literature review twisting together within each of the six threads found in the teacher participants' stories and reflections. The analysis of the transcripts was similar to discovering common patterns, made by uniquely woven threads within the tapestry of each participant.

Definitions of Terms

While exploring how metacognitive conversations/strategies can improve literacy, this paper defines several terms. First is a concise definition of metacognition, because a more

detailed explanation of metacognition will be explored in Chapter Two's literature review. Several other metacognitive strategies follow: "the metacognitive funnel" (Schoenbach, Greenleaf, & Murphy, 2012, p. 25), talking to the text, think-a-loud, double-entry logs, and LINK (list, inquire, notes, know). Finally, narrative inquiry describes how voices of the participants within this study will weave together creating the energetic cord that demonstrates the power of implementing metacognition into the classroom.

Metacognition

Metacognition is simply the awareness a person has of one's thinking (Chapter Two provides a more in-depth definition). This can be extrapolated into metacognitive conversations: it looks like students and teachers talking about their thinking while they read. The teacher does not solely direct these metacognitive conversations, because these conversations are a reciprocal event that is the result of a strong personal/emotional foundation within the classroom environment. The teacher actively listens to the student's voice and then asks questions that will direct the student into more inquiry.

Metacognitive Strategies

When the metacognitive practice is extended further to metacognitive strategies, one can see students and teachers recording their thinking while they read, regardless of the subject area. Metacognitive strategies include having purposeful conversations around reading strategies such as previewing the text, setting a purpose for reading, connecting to prior knowledge, predicting new learning, and developing new vocabulary. During a reading, strategies include monitoring one's comprehension, determining main ideas and details, making double-entry journals, and visualizing. After-reading strategies include organizing information, classifying information summarizing new learning, making and supporting inferences, and drawing and supporting

conclusions (Robb, Baumann, Fuhler, & Kindig, 2005). Schoenbach, Greenleaf, and Murphy (2012) explored how this process of talking or recording about one's thinking demystifies the reading process (p. 22). This analogy tapped into personal observations when Schoenbach et al. proclaimed, "Most of what happens with texts in classrooms gives students the mistaken impression that reading comprehension happens by magic" (p. 22). Metacognitive conversations and strategies help students see "what happens inside the mind of a more proficient reader, someone who is willing to make the invisible visible by externalizing his or her mental activity" (Schoenbach et al., pp. 22-23). Metacognitive strategies build comprehension because "the work of comprehending is metacognitive; how readers make sense of text is as important as what sense they make of it" (WestEd, 2011, p. 31). This display of comprehension is best explained through the metaphor of the metacognitive funnel. Specific metacognitive strategies introduced in this study to activate the metacognitive funnel were as follows: talking to the text, think-a-loud, double-entry logs, and LINK (list, inquire, notes, know).

The metacognitive funnel. The metacognitive funnel is an excellent metaphor that helps students and teachers "think about and talk about the ways readers' attention may shift as they read any given text" (Schoenbach et al., 2012, p. 128). The funnel demonstrates the ways an individuals' metacognitive awareness increases as they become more aware of their thinking while they engage in reading. Schoenbach et al. (2012) used four distinct categories to delineate the metacognitive depth: notice thinking, focus on reading, focus on solving reading problems, and focus on disciplinary literacy practices (p. 128).

Noticing one's thinking starts with identifying the voice within and then determining the subject of which the mind is indeed focused. From the teacher's perspective, when working with a class, this can be the starting point of conversations with the students. Noticing one's thinking

has an individual student naming a current awareness: “I am hungry.” “When does recess start?” “I am thinking about the fight with my mom this morning!” Starting these conversations is a large part of building trust. Allowing the students to voice their current frames of mind helps the teacher to identify the possible probing questions that will direct the student to focus down through the metacognitive funnel.

Directing the students to focus on reading starts with the teacher modelling various strategies that help to focus the students' awareness. These strategies can be as simple as probing questions or, as the RAF supports, these strategies become the reading routines within the classroom. An example of a probing question could be “How might this map help me understand the content of the paragraph next to it?” An example of a reading routine that helps to focus the students' awareness is a double-entry reading log (which is defined later), which when using the map example would have the student record specific attributes of the map in one column and make connections in the second column. With the metacognitive funnel in mind, the teacher intentionally plans to build the repertoire of reading strategies throughout the school year, with the hope that the students will activate their thinking awareness more independently as the year progresses.

The teacher begins this process of gradual release by teaching students strategies that help to focus on identifying and solving reading problems, as well as building strategies that support focus on disciplinary literacy practices. An example of a probing activation phrase could be “This is new information, how can you put it into your own words? Which tracking devices could be used to track your thinking?” or "Who wrote this article? Is it from a reliable source?” Probing and building metacognitive strategies, and building the awareness of metacognition,

within students is not an easy task. It involves care and attention from the teachers. These last two sections of the metacognitive funnel were at the centre of the current research.

Talking to the text. Talking to the text is a routine that makes time for the students to read and record their thinking individually before sharing with a small group. The teacher first must model talking to the text by speaking his/her thinking while recording on the text page and using a document reader so that the learners can watch the process of recording thoughts. The students then record their thinking by writing in the margins, circling important words or words that confuse, asking questions, or making predictions. Readers can make text-to-text connections; they can make clarifications; they can make markings that point out confusion so that they can ask questions to a group about the reading. These annotations can help to guide their metacognitive conversation that will lead to a deeper comprehension of the text.

Think-a-loud. Think-a-loud inquiry is a routine that requires a pair of learners to engage in reading together. While one person reads and talks about the reading and his/her thinking, the partner records what is said on a copy of the text. The pair then join with another pair, and together the four learners discuss the reading by having the recorder share what the individual readers thought while they were reading. Then the readers clarify or add more insight.

Double-entry logs. Double-entry logs are writing routines that have learners record their thinking while they read, on a separate paper that has two columns: the left column is for recording the evidence, (what they saw, heard, or read – such as a quotation) and the right column is for recording their thinking, reasoning, or question. The double-entry logs promote critical thinking by tracking the learners' thinking as they read. The repeated use of double-entry logs promotes awareness of the learners' thinking processes, and the logs also support the teacher's ability to track the progress of the learners' reading strategies.

LINK. LINK is an acronym for List, Inquire, Notes, Know, which is a group discussion pre-reading and during-reading strategy that has the learners chunk their thinking and record it based on group and individual work. The first step is to divide the class into groups of about four students and, just as the acronym says, have them **L**ist what they already know about the given topic. After this discussion around the list, the teacher then gives the students time to write down what they know. This solitary writing time is essential for making connections to the students' schema. Next, the group members ask each other questions about what was listed (**I**nquire). Then the learners record all the questions. Next, the students silently read the selected text and annotate while they read. After reading, the group comes together again, and using the inquiry questions looks for the answers within the reading to discuss the connections made. For example, teachers may prompt the students by saying, "Look for answers to our inquiry questions, or connections to what you already know or heard about in our discussion and record new questions that arose as you read." This discussion is then followed by the individual students making **N**otes.

Finally, the teacher prompts the learners to think and record what they now **K**now about the topic. The teacher encourages the learners to compare their developing understanding now, after the discussion and reading, to what they knew before the discussion and reading. The learners then write a short explanation describing how their understanding has changed as a result of the discussion and readings.

Summary of the Strategies

These strategies create metacognitive conversations and therefore become agents that disrupt student and teacher cognition, making them more aware of their thinking while they read. This disruption creates an element of chaos in the examination of literacy improvement; it is a

disruption that promotes growth when we can create stability around the chaos by using an agile mindset (Breakspear, 2016).

Chapter Summary

Chapter One explored the importance of teacher metacognition, explained the RAF for the research, outlined the purpose and the question for this study, stated the significance to the field, defined the researcher's stance of narrative inquiry, explained the theoretical-conceptual framework, and defined relevant terms.

Thesis Overview

This study captured the teacher participant's reflections and stories. Chapter One outlined the critical elements needed for a deeper understanding of metacognition and the impacts it can have on learning. Chapter Two is a literary review of metacognition, outlining the need for more research on teacher metacognition. Chapter Three outlines the methodology of the narrative inquiry and why this stance is powerful when exploring teacher metacognition. Chapter Four outlines the findings collected through the interview process; it captures the memories and reflections around metacognitive conversations and strategies within each participant's classroom. Chapter Five uses narrative inquiry to pull out six threads common to the literature and the research findings, creating a tapestry of the teachers' metacognitive process, revealing that their awareness of metacognition is impacting their practice and their perception of student achievement. Chapter Six supports the findings, weaving connections between teachers' awareness around metacognition and the common threads found in each narrative, which builds the conclusions and recommendations for practice and further research.

Chapter Two:

Analysis of the Literature

Chapter Two is an analysis of teacher metacognition in the literature, which is the raison d'être of the current study. The review defines the following terms: cognition, metacognition and personal practical knowledge. The Reading Apprentice Framework (RAF) outlines the four dimensions that support making thinking visible to students. The criteria for quality experiences of metacognition explain how the four-dimensional framework supports metacognition within any subject area classroom. Three teacher practices influence student metacognition as discovered within the literature: Teachers' modelling their thinking supports students' understanding; Teacher awareness of reading strategies broaden the reading experience for students; Teacher understanding of self-regulated learning shapes a metacognitive space for students. There are gaps in the literature on teacher metacognition, engendering possibilities for the current research.

Defining Terms:

Cognition, Metacognition, and Personal Practical Knowledge

As educators progress in their understanding of how humans learn and build knowledge, understanding of cognition and metacognition has evolved. Schraw (1998) distinguished cognition and metacognition by citing Garner: "that cognitive skills are necessary to perform a task, while metacognition is necessary to understand how the task was performed" (p. 113).

Cognition

Garner's explanation of how cognition and metacognition differ is extensively examined in Schraw & Moshman (1995), and Garner is also cited by Akman & Alagöz (2018), "while cognitive information is relevant for how one person knows and understands learning paths and

memory, cognitive adjustments skills are related to how a person organizes and adjusts his/her learning and memory" (p. 16). Akman and Alagöz also expanded on Garner and explained that developing cognitive regulation skills and cognitive knowledge means one is using one's own metacognition, and their research supports that "it is very important to investigate the correlation between the academic achievement of students and their metacognitive knowledge and skills" (p. 16). Content and curriculum in school have generally had cognition at the centre of teacher knowledge as promoted by the western curriculum (Mitchell, 2005). Metacognition and metacognitive strategies can be the catalysts of the curriculum as "something experienced in situations" (Connelly, & Clandinin, 1988, p. 6), but first teacher metacognitive awareness must be addressed.

The Language of Metacognition and Personal Practical Knowledge

Metacognition and personal practical knowledge come from different research traditions. However, both terms help us to understand how teachers make space for students to have experiences of understanding (or misunderstanding) and thinking about what they are thinking while reading and learning. An understanding of metacognition and personal practical knowledge helps the teacher to better define and employ the processes involved in building on existing schemas while reading and learning.

Metacognition

Metacognition can be understood as a person thinking about thinking (Akman & Alagöz, 2018; Aktag et al., 2017; Hughes, 2017; Ozturk, 2017a, 2017b; Rapchak, 2018; Saenz, Geraci, Miller & Tirso, 2017; Schoenbach et al., 2012; Schraw, 1998; Sullivan, 2009). As educators progress in their understanding of how humans learn, they are building knowledge, understanding the processes of cognition and metacognition.

Saenz et al. (2017) defined metacognition using Dumlosky, Serra, and Baker's assertion that "metacognition is defined as knowledge and awareness of one's own cognitive processes, and the assessment of these cognitive processes is called metacognitive monitoring" (p. 125). Aktag, Semsek, and Tuzcuoglu (2017) did not make the distinction of monitoring; instead, they included monitoring within their definition of metacognition (p. 63).

John Flavell's work is cited as the first to use metacognition in the education field (Akman & Alagöz, 2018; Meijer et al., 2006; Moshman, 2018; Prins, Veenman, & Elshout, 2006; Schellings et al., Schraw & Moshman, 1995; Van der Stel & Veenman, 2014), because he was the first to "distinguish between knowledge about the contents of memory versus processes used to regulate and monitor memory and cognition" (Schraw, 2009, p. 33; Schraw & Dennison, 1994a). Van der Stel and Veenman (2014) cited multiple researchers (Alexander et al., 1995, Winne 1996, Barnett 2000, Pressley et al., 1997), who agreed that "having metacognitive knowledge at one's disposal, however, appears to be no guarantee for using this knowledge whenever it is needed (p. 118). Akman and Alagöz (2018) ascertained that metacognition has been popular in the field of cognitive psychology and education since the 1970s and that metacognitive awareness "involves recognition of what the individual does or does not know, controlling his or her mental processes, taking the learning responsibility, being aware of his/her own learning strategies, evaluating his own learning, planning, monitoring and managing his knowledge" (p. 16), all essential aspects of one's learning.

Van der Stel and Veenman, (2010, 2014) help us to understand how metacognition develops within a person, and although this goes beyond the scope of this current study, it is helpful in understanding how experts like teachers might influence metacognitive growth when it becomes a part of a teacher's personal practical knowledge.

> Some evidence has been found that "theory of mind" (ToM) can be considered as a precursor of metacognitive knowledge (Lockl and Schneider 2006), while metacognitive knowledge can be considered as a necessary precursor of one's metacognitive skills (Annevirta and Vauras 2006). Alongside with the ToM, that is, the understanding of one's own and other people's state of mind (Wellman 1990), young preschoolers already start to develop some metacognitive awareness (Blöte et al. 2004; Demetriou and Efklides 1990; Kuhn 1999). Larkin (2006) found a relation between ToM, metacognitive knowledge, and strategy use in two 5- to 6- year olds. (Van der Stelp & Veenman, 2014, pp. 119-120)

Van der Stel and Veenman's study (2014) further determined that growth in the use of metacognitive skills of participants' ages 13-15 became stagnant after the second year within the study (p. 130). However,

> it is presumed that growth is only temporarily arrested. According to the dynamic systems theory (Siegler et al. 2010), a theory that focuses on how change occurs over time in complex systems, individual children acquire skills at different ages and at a different pace. Individual development entails regressions as well as progress. Development of metacognitive skills seems to be in line with the dynamic systems theory: During development, both progress and regression occur, and not all components of metacognitive skills develop at the same pace. Vukman and Licardo (2010) also found a decrease in all fields of self-regulation from age 14 to 18 years, followed by an increase to the age of 22 years. (Van der Stel & Veenman, p. 131)

We can now anticipate that the need for modelling from the expert would enhance and support the awareness of individuals as they continue schooling, explicitly participating in the practice of

metacognition, as opposed to letting regulation of metacognition develop without intervention from expert teachers. Van der Stel and Veenman's (2010) study shows that "metacognitive skills cannot be ignored as an important predictor of learning performance. These skills develop during an important phase in education (p. 224).

Making metacognition a part of everyday routines was emphasized when Hughes (2017) highlights metacognition as the ability to "recognize and regulate one's own thinking in real time" (p. 25), and Bing-You et al. (2017) coined the time reference as "thinking-in action" (p. 410). Including "in real time" connects with the most significant aspect of Akman and Alagöz's (2018) research, when they acknowledged that "while many students use metacognitive strategies while reading books, it cannot be argued that all students know how and why to use them" (p. 16). Therefore, the current research sought to find a connection between the awareness of teachers' metacognition and their ability to model their metacognition "in real time" (Hughes, p.25), so that metacognition becomes a part of the daily classroom practice because it is a part of the teachers' personal practical knowledge.

Personal Practical Knowledge

Personal Practical Knowledge is a holistic approach to thinking about all the tools, presences of mind, and connections that teachers bring, as they become curriculum makers. Connelly and Clandinin (1988) descrubed "personal practical knowledge" as

> a term designed to capture the idea of experience in a way that allows us to talk about teachers as knowledgeable and knowing persons. . . . [Personal practical knowledge] is in the person's past experiences, in the person's present mind and body, and in the person's future plans and actions. . . . [Personal practical knowledge is found in the teacher's

practice. It is, for any teacher,] a particular way of reconstructing the past and the intention for the future to deal with the exigencies of a present situation. (p. 25)

Personal practical knowledge is a teacher thinking about what he or she knows in relation to how he or she will create experiences for the children in classrooms. A thought influencing the current research is that perhaps teachers' use of their personal practical knowledge is more based on successes with their past experiences, "curriculum-as-plan" (Aoki, 1993, p. 257), and that their understanding of what made that successful might need a shift or change in the next moments of "curriculum-as-lived" (Aoki, 1993, p. 258). Therefore, the learning and increased practice of metacognition are needed in order to expand on teachers' personal practical knowledge while teaching the students to read challenging texts in their classrooms. The question is when teachers are asking students to read and then demonstrate understanding from their readings, do they have enough personal practical knowledge around demonstrating their expert reading strategies? As Charles McMurry indicated in 1914, "The teacher is working at the very smelting process, the point of difficulty where new, uncomprehending knowledge meets this tumult of the child's mind" (Clandinin, & Connelly, 1992, p. 378). The RAF supports teachers with this "smelting process," providing detailed structures and strategies that help build teachers' awareness of metacognition.

Reading Apprenticeship Framework:

Teachers' Thinking About Making Thinking Visible

The RAF is rooted in psychologist L.S. Vygotsky's work that holds that cognitive development needs healthy social support systems (Schoenbach et al., 2012, p. 21). Within the RAF, the idea of learning to read is considered a complex task, and it requires supports through multiple levels of one's learning and cognitive development (p. 17). The RAF calls for a gradual

release of responsibility as teachers model their thinking around their own reading strategies "for students encountering challenging academic materials and tasks, being shown what goes on behind the curtain of expert reading is especially powerful" (p. 22). The RAF speaks of "demystifying" the reading processes (p. 22) through "text-based discussions" (p. 23) with experts and peers "developing engaged, strategic and independent readers" (p. 23).

Criteria for Quality Experiences of Metacognition in Reading

The four-dimensional framework of the Reading Apprenticeship (RA) makes space for metacognitive student conversation (internal and external) as articulated by Schoenbach et al. (2012):

> *Social Dimension:* Community building in the classroom, including recognizing their resources brought by each member and developing a safe environment for students to be open about their reading difficulties.
>
> *Personal Dimension:* Developing students' identities and self-awareness as readers, as well as their purposes for reading and goals for reading improvement.
>
> *Cognitive Dimension:* Developing readers' mental processes, including their problem-solving strategies.
>
> *Knowledge-Building Dimension:* identifying and expanding the kinds of knowledge readers bring to a text and further develop through interactions with that text. (p. 24)

Surrounding these four dimensions of the RAF classroom is "reading and collaborative work with texts" (p. 24). Students, along with teachers and peers, engage in texts: talking about the text and annotating around the text. There is "a focus on reading and talk about reading during classroom lessons (which) gives teachers the opportunity to mentor students in the reasoning and problem-solving skills they need to master" (p. 24). This talking of, about, and to the text is

referred to as the metacognitive conversation, and the metacognitive conversation is central to the RAF (p. 25). Researchers O'Malley and Chamot highlighted the importance of metacognition by discovering "a correlation between learners' success and the use of metacognitive strategies" (Forbes & Fisher, 2018, p. 174). This correlation must be extrapolated now to teachers. It is within the metacognitive strategies and metacognitive conversations that the teachers' personal practical knowledge can make for powerful learning moments.

Social Dimension

The social dimension within the RAF pertains to the awareness around the building of the social learning community by "the teacher as curriculum maker" (Clandinin & Connell, 1992). The social dimension entails teachers creating safe places for learners to share their idea production, "integrating the relationship between literacy and power" and developing voice around a text (Schoenbach et al., 2012, p. 25). The social dimension involves teachers' awareness around building the learning experience. Borko et al. (2000) cited Prawt & Floden and Resnick's findings that "social constructivists accept the premise that knowledge is a social product; knowledge creation is a shared experience" (p. 269). Richmond et al. (2017) found that "when students received active learning instruction, they had significantly better academic performance versus students who were taught using direct instruction on both immediate and delayed assessments (p. 299). Reference to the social dimension is seen in Borko et al.'s (2000) research, because they found that the teachers they were following "talked about 'giving up control' to students as they organized the learning environments in their classrooms to enable students to take a more active role in their own learning" (p. 296). These ideas of experiential learning can be accentuated by the inclusion of metacognitive strategies and metacognitive conversations.

Rapchak's (2018) research hinted at the importance of social interaction because "instructors may need to include assignments or synchronous discussion sessions for collaborative groups that encourage brainstorming" (p. 385), very similar to the process encouraged by RAF. Moshman (2018) described "the role of peer interaction as a 'process of social construction that differs in part from both cultural transmission and individual construction'" (p. 601). Jones (2007) asserted that "making our implicit thoughts explicit through talk is a powerful learning tool for both adults and children" (p. 569). All of these researchers encouraged discussion, highlighting the importance of both sharing and listening, and this notion is at the centre of RAF upholding metacognitive conversations in the classroom.

Central to the metacognitive conversation is the ability to listen. Chou's (2017) research reveals that although listening is a significant part of learning, "it has received less research attention than the other three language skills" (p. 51). Chou's also examined the influence of task-based lesson planning, as an alternative to lecture-based planning (p. 54), indicating that task-based lesson has more impact on learner's metacognitive awareness (p. 54). "The life quality of human beings will be increased with thought sharing and discussion and this increase is achieved by means of an adequate development of mental faculties such as critical and creative thinking, raising metacognitive awareness and problem solving" (Akman & Alagöz, 2018, p. 11). Ensuring that metacognitive strategies and metacognitive conversation are regularly occurring in the classroom means that teachers need to build a safe space in which students can actively share their voice and listen to others. Aktag et al.'s (2017) research speaks to the preparation needed to highlight the social dimension during teacher training, in that "it is necessary for teachers to prepare surroundings to improve metacognitive skills during their undergraduate education as well as with the support of in-service trainings" (p. 68). This

research speaks to the need for building personal practical knowledge of teachers, including metacognition in teacher preparation, acknowledging the importance of the social dimension.

Personal Dimension

The personal dimension within the RAF has at its core the idea of developing the individual student identity around reading and learning. Central to this student development is the use of metacognitive strategies and metacognitive conversations. Yildiz and Akdag (2017) referenced Vygotsky's work, identifying the expression of the "inner voice" of student's processes as crucial to their learning process (p. 31). Researchers agree that supporting metacognition in the classroom needs to take into account the personal aspects of the individual. Larson (2009) acknowledged "that (current) educational discourse and practice fails to give any consideration to the inner life of human formation" (p. 317). Larson directly identified the lack of attention currently given to the personal dimension of students:

> The inner life of the student is of vital existential significance, but part of an excluded or ignored "null curriculum." Educational theory and practice largely fails to consider that which is decisive in the making of who we actually are: "The narrative that runs in your mind throughout your day (e.g., your worries, hopes, dreams, thoughts of your social-image, body-image), your emotional life, and your bodily sensations are all subject matter that forms an inner curriculum." (p. 316)

Larson's research supports the need for teachers to recognize the personal dimension of the students because it directly affects their abilities to learn.

Building the personal dimension within students is not considered an easy task. Abromitis (1994) refered to the development of fluency and stamina as reflected in the personal dimension: "A metacognitive analysis of the task puts the reader in control of the situation; it

encourages flexible and adaptive thinking, and if necessary, modification of the reading process to fit the known purpose for reading" (p. 5). She described the importance of reader identity as students developing "a basic understanding of their own characteristics as learner. . . This [personal] knowledge is usually late-developing, and significant differences are seen between beginning and mature readers, and good and poor readers at all stages" (p. 6). Schraw's (1998) literacy review indicated, "Monitoring ability develops slowly and is quite poor in children and even adults" (p. 115). Forbes and Fisher's (2018) study upheld the importance of building the personal dimension despite the rigor needed because

> Metacognitive learning strategies can have a positive impact on [the student's] confidence and proficiency levels . . . [S]trategy use also must be recognized as a complex phenomenon which needs to consider students' individual personality and learning styles and the particular task or skill at hand (p. 184).

Attention to the personal dimension is also seen in Ozturk's (2017a) research, in which he affirmed that "in order for readers to plan, monitor, regulate and evaluate cognitive strategies and reading process and performance, metacognitive strategies are indispensable" (pp. 247-248).

All of these researchers pointed to the need for teachers to build their personal practical knowledge around how metacognitive awareness can benefit their growth as well as their students' growth. Schraw (1998) also noted studies that "suggest that monitoring ability improves with training and practice" (p. 115). This research indicated that students need to distinguish between cognition and metacognition to become better self-regulating individuals and that teachers need to model this visibly. "High quality instruction enables students of all ages to construct domain-specific and domain-general strategies, metacognitive knowledge about themselves and their cognitive skills, and how to better regulate their cognition" (Schraw, 1998,

p. 123). Developing these personal aspects of how students read and think needs to be modelled by teachers; thus, teacher metacognitive awareness is necessary to support the personal dimension of each classroom.

Cognitive Dimension

Metacognition has two significant components: knowledge about cognition and regulation of cognition (Schraw & Moshman, 1995). Schraw (1994a) referenced the research done by Brown, Flavell, and Jacobs and Paris, which was initiated over three decades ago. Schraw further broke down both components as follows: knowledge of cognition into three sub-processes: declarative knowledge, procedural knowledge and conditional knowledge; and regulation of cognition into five sub processes: planning, information management strategies, comprehension monitoring, debugging strategies, and evaluation (p. 460; extensive review in Schraw & Moshman, 1995). Researchers in the 21st-century still use these sub-processes of both knowledge of cognition and regulation of cognition as bases for their research (Akman & Alagoz, 2018; Bing-You et al., 2017; Chou, 2017; Hughes, 2017, Kallio et al., 2017, Kallio et. al., 2018; Ozturk, 2017a, 2017b). Abromitis (1994) cited Otto's research, acknowledging that "for successful readers, metacognitive development seems to parallel their cognitive development in reading, where poor readers' metacognitive development falls behind their cognitive development" (p. 8). Could the same parallel be found when measuring teacher awareness of metacognition to their practice of metacognition in the classroom? Schraw and Graham's (1997) research also supports this gap, affirming that "metacognitive knowledge is not necessarily stable or conscious" and that "even adults experience difficulty providing explicit descriptions of their own expert cognition" (p. 4). Prins et al. (2006) applied Elshout's 1987's *threshold of problematicity theory*, predicting that for a novice learner "when tasks are very

complex, the quality of metacognitive skills rather than intellectual ability is the main determinant of learning outcomes, because learners have to improvise and use heuristics rather than call upon knowledge and skill components that are associated with intellectual ability" (p. 377). Prins et al.'s findings supported that metacognitive strategies are the "main determinant" in overcoming complex problems (p. 384). Therefore, this supports the need for teachers to model an expert's navigation of complex thinking around reading, making visible metacognition strategies to support student metacognition. Perhaps this is another reason for more research regarding teachers' metacognitive awareness and their ability to model metacognition in classrooms.

Schraw's (1994a) literature review focused on student metacognition, citing several findings from the early 1990s that "metacognitive knowledge plays a compensatory role in cognitive performance by improving strategy use" (p. 461). The purpose of Schraw's research was "to generate and test an easily administered metacognitive inventory suitable for adolescents and adults (p. 461). The results of Schraw's research using the Metacognitive Awareness Inventory (MAI, Appendix A) validated "that the test provided reliable initial test of metacognitive awareness among older students" (p. 472). This test, with a slight variation of the subprocesses, is still used in 21st century research, helping to build research and awareness around metacognition.

The implication of metacognition, on the "teacher as curriculum makers" (Clandinin & Connell, 1992) as pertaining to the cognitive dimension, is reflected in research.

> For efficient reading, individuals had better use cognitive and metacognitive strategies simultaneously. As for meaning-making and gaining information out of context, readers employ cognitive strategies. In order for readers to plan, monitor, regulate, and evaluate

> cognitive strategies and reading process and performance, metacognitive strategies are indispensable. When any of these competencies are inadequate, comprehension can be impeded. (Ozturk, 2017a, pp. 247-248)

Therefore, metacognition and the tracking of metacognition are "key to learning and [are] indispensable in a classroom setting because [they] allow students to assess the impact on their study habits and guide future academic behaviors" (Saenz et al., 2017, p. 125). Bing-You et al. (2017) related this key to learning, as similar to a clinical teacher saying that the "cognitive function involves planning the use of effective strategies for teaching and learning, monitoring one's performance and the situation, and evaluating the accomplishment of tasks" (p. 410). They acknowledged the importance of monitoring these cognitive functions in real-time. Jones (2007) asserted this idea of in real-time, asking for "the teacher [to] model the metacognitive process [as it] is central in asking questions that encourage children to consider how, for example, they solve problems; why they accept or reject particular ideas; or why, perhaps, they would undertake the process differently another time" (p. 572).

Akman and Alagöz (2018) explained:

> Cognitive information is relevant for how one person knows and understands learning paths and memory, [and] cognitive adjustment skills are related to how a person organizes and adjusts his/her learning and memory. . . . If students have developed their cognitive regulation skills and their cognitive knowledge, that means they are using their metacognition and they are academically superior. (p. 16)

Therefore, in order to build classrooms that support the cognitive dimension, teachers need to access their metacognition and model this to students. Saenz et al. (2017) and Ozturk (2017a,

2017b) firmly linked the need for increased metacognitive awareness in a teacher's personal practical knowledge.

Knowledge-Building Dimension

Understanding the importance and compelling nature of teacher metacognition as it pertains to building knowledge or refining individual schema is supported by Kallio et al.'s (2017) finding that "to achieve good learning outcomes, students should be able to regulate their learning within different subject areas. This kind of setting requires a revision of the teachers' role" (p. 78). Another recent study by Fletcher (2018) had teachers use "help seeking" as a strategy in their classroom. This term is related to one's metacognitive knowledge, such that teachers teach "help seeking [so that it] is framed by a learner's awareness about the context in respect to persons, strategies, goals and tasks that may be of help" (p. 391). Fletcher's (2018) "findings suggest that this approach [of help seeking] aided students' engagement in metacognitive processes such as monitoring understanding, organizing ideas and checking for consistency" (p. 400). The regulation of student metacognition is necessary while building knowledge of disciplinary discourse and practices (Schoenbach et al., 2012, p. 25).

The regulation of students' schema as they learn is highlighted in the RAF (Schoenbach et al., 2012) within the metacognitive conversations that make visible the strategies that teachers and peers use to refine their existing schema (p. 37). RAF upholds that when teachers and peers model strategies such as think-aloud, talking to the text, and double-entry journals (p. 101), they are demonstrating the regulation of their thinking. Other strategies that are similar to double entry journals are See-Think-Wonder, Colour, Symbol, Image (CSI), and Sentence-Phrase-Word (Ritchhart et al., 2011, pp. 51-52). All of these strategies help students to become expert at regulating their own thinking when modelled by teachers and peers, thus increasing the students'

knowledge building. Karpicke and Grimaldi's (2013) research highlights the significance that retrieval-practice has on building knowledge, and yet students do not actively use retrieval-practice strategies (p. 411). Missing from Karpicke and Grimaldi's study is a correlation to teacher use of these retrieval-practice strategies.

The teacher modelling of metacognition becomes instruction that activates and develops students' metacognition. For both student and teacher, "metacognitive awareness is required in knowledge-intensive work and lifelong learning" (Kallio et al., 2018, p. 102). Teacher modelling pertains to "implementing metacognition as an integral part of . . . lessons, and . . . making students aware of their cognitive activities and the utility of those activities" as cited in Ozturk (2017a, p. 249). Therefore, "knowledge of teachers' awareness of metacognition is required to support students' self-regulation" (Kallio et al., 2017, p. 79). This research presents a need for the awareness of metacognition within the teachers to increase, thus supporting knowledge-building by modelling these self-regulation skills to their students. Engaging the teachers in metacognitive awareness supports them to have more success during metacognitive conversations.

Three Teacher Practices That Influence Student Metacognition

There is widespread agreement among educational researchers that the way teachers think about thinking affects the experiences students have during learning. In preparation for this literature review, it became quickly apparent that student thinking has been more thoroughly researched and that there is a lack of research regarding teacher metacognition and awareness while teaching. However, three teacher practices that influence student metacognition emerged when using the four-dimensions of the RAF. These practices comprised the following threads found within the literature review: Teachers' modelling their thinking supports students'

understanding; Teacher awareness of reading strategies broaden the reading experience for students; Teacher understanding of self-regulated learning shapes a metacognitive space for students.

Teachers' Modelling Their Thinking Supports Students' Understanding.

The four dimensions in RAF create the foundation that supports making metacognition visible. The personal dimension and the social dimension work together, enabling direct instruction of strategies alongside flexible modelling by the teacher and practice with peers (Abromitis, 1994). Modelling metacognition, making thinking visible, delineates "when, how and where each strategy is used" (Ozturk, 2017a, p. 249) and helps to solidify the strategy's impact on the reading and learning process for the student (Ozturk, 2017b). Schoenbach et al. (2012) expressed how this all starts with the teachers' modelling their metacognition to demystify the thinking process for students.

Teacher Awareness of Reading Strategies Broaden the Reading Experience for Students.

Forbes and Fisher (2018) claimed that understanding strategies has more impact when the student knows best when to use that strategy, such that "for teachers it highlights a range of strategies which can be introduced to students to improve both their confidence and proficiency levels (p. 184). They made "a correlation between learners' success and the use of metacognitive strategies" (p. 174). The RAF supports teacher awareness with multiple reading strategies, because the reading and learning experiences of students need the four dimensions (personal, social, cognitive, and knowledge-building) in place to ensure that learners take control of their learning.

Teacher Understanding of Self-Regulated Learning Shapes a Metacognitive Space for Students.

Rapchak's research speaks to the social interaction that is needed to make space for metacognitive strategies and conversations. This connects with the social dimension of RAF in shaping the classroom space and readying students for classroom activities that spiral them down the metacognitive funnel. The literature speaks to the gradual release of students, which has more impact when the students' self-regulation is supported by social interactions that share metacognition and knowledge building processes that effectively engage existing schema (Aktag et al., 2017; Bing-You et al., 2017). Young and Fry (2008) confirmed that a teacher can use metacognitive awareness to "tailor instructional intervention related to metacognitive knowledge and regulation to meet the needs of individual students" (p. 9). The literature around metacognition supports the need for more research around teacher metacognition so as to inform teachers' personal practical knowledge around supporting students to "make informed choices about self-regulated behaviors" (Shraw & Moshman, 1995, p. 361)

Gaps in the Literature on Teacher Metacognition

The literature indicates that there is a gap between teacher awareness of metacognition and teacher practices using metacognition. Metacognition "has become increasingly important in the realms of teacher professional development, with the understanding that if teachers are able to teach students to be metacognitive or to think metacognitively, then teachers must think metacognitively themselves, as well as be aware of when metacognition is taking place (Prytula, 2012, p. 112). Putnam and Borko (2000) wrote of the need for the building of teacher personal practical knowledge when they said "less attention has been paid to teachers----either to their roles in creating learning experiences consistent with the reform agenda or to how they

themselves learn new ways of teaching" (p. 4). Ozturk (2017b) confirmed, "There is a gap between metacognition research and practices" (p. 3). Therefore, the teachers' personal practical knowledge regarding metacognition is limited, and this directly affects student learning. "The degree to which students are capable of metacognition and the degree to which teachers teach metacognition in the mainstream and research classrooms are not similar to each other" (pp. 3-4). Ozturk (2017b) reports that "limited research examining teachers' pedagogies of metacognition reported that teachers' instruction lacks pedagogies of metacognition so as to teach students metacognition" (p. 4). The lack of pedagogical tools is also in Ozturk (2017a): "It is unfortunate that research findings do not translate into effective classroom metacognition instruction automatically and/or easily" (p. 248). Prytula (2012) also found that "teachers must understand metacognition themselves and how they use it throughout their professional work. In practice, however, a gap exists in discovering and understanding the metacognitive thought processes of teachers as they engage in professional dialogues and professional development (p. 113). Again, this stresses the need for increased awareness of metacognition to heighten teachers' personal practical knowledge.

Ozturk (2017a) claimed that lack of teachers' personal practical knowledge around metacognition is affecting the students' abilities to "execute metacognitive control" (p. 248). "Although both teacher competencies and metacognition are known to play a vital role in learning, surprisingly little is known about teacher knowledge of metacognition" (Larson, 2009, p. 184). Mitchell (2005) is accurate in stating that "in an increasingly multicultural world, all people and their knowledge ways occupy an equal place within the sacred circle of life" (p. 42). The goal of continued research regarding metacognition is to understand and perhaps make an awareness that will lessen the theory-to-practice transfer problem (Craig, 2012) within the

teaching community, promoting the need and practice of metacognition as a fundamental component of teacher personal practical knowledge.

Abromitis's (1994) discussion sets out direct teacher actions that could influence the teacher's use of metacognition within the classroom; however, Abromitis mostly examined student metacognition and not teacher metacognition. Moreover, Craig (1995) ascertained that metacognition is yet to be considered standard content for teacher personal practical knowledge (p. 152). More research is needed to build evidence that teacher awareness of metacognition is a prerequisite for improving student metacognition. Ozturk (2017a) concluded, "It is important both to investigate teachers' understanding, knowledge and competencies with metacognition instruction and also help empower them as metacognitive models" (pp. 248-249). Doing so will build teachers' personal practical knowledge. Building personal practical knowledge using metacognitive strategies and metacognitive conversation is needed because "teachers' metacognitive declarative knowledge about thinking skills was not satisfactory to be able to teach students the same skills" (Ozturk, 2017b, p. 6). The literature reinforces the need for further research regarding teachers' awareness of metacognition and their ability to use metacognitive strategies in their practice.

Possibilities for This Current Research

This literature review has highlighted the importance of quality assessment tools when researching a person's metacognitive awareness (Schraw & Dennison, 1994a, p. 461). The current research used the Metacognitive Awareness Inventory (Schraw & Dennison, 1994c) as a tool to activate metacognitive thinking in each participant, thus priming the participant reflections.

Further metacognitive research should consider that "metacognitive skill and metacognitive activity are not the same – at least they are operationalized differently. In the first place, metacognitive activity and cognitive activity are very hard to distinguish" (Meijer et al., 2012, p. 620). Metacognition can be tricky to observe and time-consuming to track and record accurately. Therefore, current research regarding metacognition should take into consideration the following thoughts as recorded by Meijer et al. (2012):

> Veenman (1993) claims that the most important distinction is that between metacognitive knowledge and metacognitive skill. Meijer et al. (2003) introduced the distinction between metacognitive knowledge, metacognitive regulation and metacognitive responsiveness. Efklides (2006) introduced the concept of metacognitive experience, and Schraw and Dennison (1994) used metacognitive awareness. Apart from resolving the manifold operationalization of the construct "metacognition", it appears that further consensus concerning the theoretical status of the construct and its subdivisions is badly needed. (p. 621)

The current research's focus on teacher awareness opens a new avenue in the literature, which has so far been restricted to students' metacognition as it relates to their academic performance. Making the teachers' metacognition visible reveals the relationship between modelling metacognition and increasing teachers' perceptions of student achievement. "An interesting finding in one of the Veenman et al. studies was that the strength of the relationship between intelligence and metacognition appeared to be dependent on the level of expertise" (Meijer et al., 2012, p. 602). Once again, the literature review speaks to the need for the current research regarding teachers as experts in implementing metacognitive strategies and metacognitive conversations within their personal practical knowledge.

We have also learned from Ozturk (2017b) that "Teaching and Learning constitute two sides of a coin. Neither can be studied independent of the other because teaching and learning inform each other. However, metacognition research has to sacrifice one to understand the target phenomenon better" (p. 5). It is for this reason that this current research concentrated on the teachers' metacognition without the voice of the students. I am aware that this created a bias in this research, because working only from the teachers' perspective is incomplete when understanding the metacognitive process within the classroom. Metacognitive strategies and metacognitive conversations within the RAF classroom are composed of the students' voices at the centre. However, as noted in the literature, there is a need to understand the teachers' awareness of metacognition and build their personal practical knowledge.

This research was also informed by McLeod's (2015) work on reflection. McLeod's research paid attention to research done in 2008 by Moon, who wrote that "one person cannot make another person reflect; they can only facilitate or foster a critically reflective approach through appropriate conditions" (p. 256). Because the current research hoped to gain insight regarding teachers' awareness of metacognition through analysis of their reflections, there was a possibility that teachers' personal practical knowledge would be enriched through these self-reflections. Thus, creating appropriate conditions for each participant held great weight in preparation for this study. This current research sought to build on Putnam and Borko's (2000) notion that teachers' learning experiences are "too removed from the day-to-day work of teaching" (p. 6). Establishing this research around the RAF, with choice and time in consideration, it was hoped that participants would feel confident in their day-to-day conditions and that the teachers' personal practical knowledge around metacognition would flow easily into their reflections.

Schellings et al. (2013) described a gap in students' understanding of their own metacognitive awareness, which may be extrapolated into the current research of teachers' metacognitive awareness. Because metacognition is complex, understanding "what" assessments to use for "what" metacognitive exercises is not yet conclusive. The complexity arises in the understanding of conscious metacognitive work, and the unconscious metacognitive work that is happening within participants/learners. Comparing the research of Pressley and Afflerbach with the work of Schraw and Moshman and conducting an analysis, Schellings et al. noted that the complexity of metacognition makes it hard to determine what aspects of cognition are affected by certain metacognitive strategies (p. 965).

Schellings et al. (2013) gave substantial grounds for caution while in the preparation states of future research. Their work suggests that coding systems used to assess such metacognitive exercises as a think-aloud strategy may be time-labour intensive, and they have variances because only conscious reflection by the participant is assessed. Therefore, attention to "both the procedure and the coding system should be described in greater depth" (Schellings et al., p. 968). This information gave this current research a base for thoroughly preparing the questionnaire and the strategies of coding, and for reviewing transcripts while researching teachers' awareness of metacognition.

Conclusion

While reviewing research regarding teacher metacognition, it became quickly apparent that student metacognition was more widely researched, and there exists a lack of research regarding teacher metacognition and awareness. The literacy review has made visible the concerns regarding implementing metacognitive strategies and metacognitive conversation within the classroom, because they are not yet firmly a part of a teacher's personal practical

knowledge. The literature review also demonstrates how the Reading Apprenticeship Framework contains possible solutions to the current need for increased awareness of teachers' metacognition. The literature review has revealed gaps in research regarding teacher metacognition, thus pointing to the need for more research. Teachers need to practise metacognitive strategies to make metacognition a core component of their personal practical knowledge. When this happens, the metacognitive conversation will then become a part of the teachers' personal practical knowledge, supporting the "curriculum-as-plan" within the moments of "curriculum-as-lived" (Aoki, 1993). The goal of continued research should keep the need for awareness of metacognition at the forefront, nurturing the development of teachers' personal practical knowledge; making the teachers as curriculum makers more equipped to model their thinking while reading in the classroom. The notion of teachers as curriculum makers advocates that we keep improving by sharing our stories and listening to others' stories so that we "learn to live new stories in (our) practices" (Clandinin & Connelly, 1992, p. 393). This collaboration supports that curriculum serves us best when we look at it as living, one that expands and grows within each learner/teacher moment. This belief is fundamental to the current research.

Chapter Summary

Chapter Two was a literature review of teacher metacognition. Terms highlighted within this review were cognition, metacognition, and personal practical knowledge. The RAF was outlined, explaining its four dimensions as critical in supporting this research. Gaps in research were explored, which led to the conclusion outlining the need for more research on teacher metacognition.

Chapter Three outlines the methodology of the narrative inquiry and why this stance is powerful for the current research of exploring teacher metacognition.

Chapter Three:

The Methodology

Chapter Three describes the epistemological and ontological stance of the research, which leads into the methodology choice of the narrative inquirer. The chapter then outlines the research method of this current research by restating the problem and the questions, reviewing ethical considerations, and speaking to data storage. Then the chapter describes the research setting, the sampling, the details regarding data collection, and the analysis of transcripts. The chapter concludes with the limitations of the research which are: the small quota purposive sample and that the analysis may contain bias because of the omission of the students' voice.

Epistemological and Ontological Stance

Acknowledging one's ontology, the study of how one perceives reality, is an exercise in discovering a deeper understanding of objectivists and subjectivists, and how these two stances can affect any research. Also obtaining a deeper understanding of the researcher's epistemology, the idea that there are multiple ways of knowing, helps to understand how the researcher might create bias or ethical issues in this current research study. It gives insight into how we approach our view of reality. Knowing the personal stance with these two paradigms helped to position me in the methods and processes of this research (Krauss and Wahyuni). Göktürk restated Foucault's definition that "a paradigm, as an example which defines the intelligibility of the set to which it belongs and at the same time which it constitutes" (p. 5). This definition reinforced the fine lines in which paradigms are defined. This study upheld that a teacher's paradigm may affect the ability to reflect on metacognition and therefore might create a negative stance around metacognition. Using narrative inquiry, I noted my participants' stances and I noted my own paradigm as I made reflections during the analysis.

Because this study focused on the effects that metacognitive strategies and metacognitive conversations may have on students' attaining new knowledge from the perspective of their teachers, and because my stance within this study reflected the belief that students have the abilities to succeed when given optimal conditions, I acknowledged the bias within the research. If I thought metacognition and metacognitive conversations were a waste of time, my professional ethics would not stand the continued practice. My belief in the individual work of the participants with their students reflected a stance in social constructivism. Therefore, my stance may have had an impact on a teacher participants' reflections and their perceptions of students' growth.

Narrative Inquiry

Clandinin and Connelly (2000) set the tone of data analysis within this research stance by asking the question: Why narrative inquiry? They named five tensions that create understanding: temporality, people, action, certainty, and context. These five tensions can create confusion within research because they blur the lines between "the grand narrative and narrative thinking" (Clandinin & Connelly, p. 32). This awareness of story, paired with Dewey's two inseparable criteria of experience: continuity and interaction (Clandinin & Connelly, pp. 32-33), formulate building blocks for research that fit perfectly with this study's intention of tracking the awareness of teacher metacognition. This research built a narrative of the teachers' awareness of metacognition with the hope that they could deeply reflect upon how metacognition is impacting student learning from the teacher participants' perspective. This research helped to fill gaps in the literature that was currently available regarding teacher metacognition, as noted in Chapter Two. The narratives that were created wove a tapestry of four teachers who were willing to make their thinking visible, revealing teacher metacognition.

The challenge of this study was to transform the field text of each teacher into an authentic narrative story that revealed metacognitive thinking. The relationship between the participants and myself was critical, and therefore, I shared my metacognition and included myself in the vulnerability of sharing and reflecting. "One of the starting points for narrative inquiry is the researcher's narrative of experience, the researcher's autobiography" (Clandinin & Connelly, 2000, p. 72). Therefore, the research included my voice as well as the voice of each participant.

I wrote this study as a narrative inquirer. I collected field text, and then analyzed these texts so that the participants' metacognitive story could be told. "One of the starting points for narrative inquiry is the researcher's own narrative of experience" (Clandinin & Connelly, 2000, p. 70), and thus I engaged as this seeker of story knowing that my stance was aligned with constructivism (Wahyuni, 2012, p. 71) and relativistic (Krauss, 2005, p. 760). People create their reality and their observations by listening and viewing. (For the purpose of this study, observations were solely listening to participants' voices.) Therefore, the teacher participants' perceptions were relative to them. I believed that when I observed, it was almost impossible for me not to be subjective and involved. For me to be objective felt like the context of my reality was not being observed. Therefore, when researching, I followed the methodology and practices of "qualitative research . . . that posits that there is no objective reality" (Krauss, p. 760). However, Krauss stressed that methodology should depend on the researcher's purpose to the question more than committing to one paradigm (p. 761). If researchers are being honest in finding data that reflects the truth, they must choose a methodology that best finds the data to explain the reality to the best of their ability. I believe that research around teacher awareness of metacognition is best suited to a narrative inquiry, qualitative methodology.

The Research Method

This study examined teacher awareness and teacher use of metacognitive practices in Canadian schools within Manitoba with ethical permission by the Brandon University Research Ethics Committee (BUREC, Appendix B). This narrative inquiry research created reflective stories through an analysis of transcripts of interviews. The Metacognitive Awareness Inventory (MAI) tool activated the participants' thinking, which helped to tune their reflections and the qualitative transcripts of the interviews, revealing trends in metacognitive vocabulary and reflective story. This research has created a narrative of the individual internal dialogue that has exposed the impact that metacognitive understanding has within teachers who practise metacognitive conversations and strategies daily within their classrooms.

The Research Problem and Questions

The literature on teacher metacognition was limited at the time of this study. The majority of the literature centred on student metacognition and there was a call for more evidence regarding teacher metacognition, so this study sought to capture the metacognitive story of the teacher participants.

The primary research question was as follows:

- How does a teacher's understanding of metacognition influence the development of metacognitive skills and metacognitive conversations in classroom practices and routines?

The research sub-questions based on this question were as follows:

- How does this awareness help influence to the teacher's decision making within planning, classroom set up, and daily routines?

- What evidence indicates that the teacher's understandings of metacognition is making a positive impact on the teachers' perceptions of student learning?

The point of this study was to examine how teachers' knowledge of metacognition would affect their perceptions of student achievement and therefore then impact the choices they made regarding how and why they engaged in metacognitive conversations and strategies.

Ethical Considerations

When reflecting on the statement "How have people in this setting constructed their belief and view?" (Remler & Ryzin, 2015, p. 64), I embraced the stance of how the teacher participants believed people learn: individuals enter spaces of learning with their own experiences and realities of life, and therefore must make connections in collaboration with the people/text around them based on their reality. New knowledge has to be attached to existing knowledge, and how one perceives one's act of knowing can make connections look differently for each person. Teachers who are social constructivists believe that all learning is constructed through collaboration with peers and teacher. Social constructivists believe that ideas are created by human activity, so then knowledge is a construct from social events (Kim, 2001, p. 3). Berger and Luckmann (1966) stated that experiences take place in a "face-to-face" situation and that these encounters are then a shared reality (p. 52). We all live in a reality that is shared by others. We all have experiences that are created in a reality that is shared with others. Therefore, it is through our interactions with people in our world that we create new knowledge. The benefit from this approach to knowledge is centered on the idea that we are smarter as a collective. We build knowledge through experiences that are shared; however, it is up to the individual to have awareness. The collaboration invites new ideas and, therefore, a new opportunity to express new thinking.

Drawbacks of this stance are that we are then limited in the growth potential by the society in which we live. In order to gain different perspectives beyond our culture/society, insight and wisdom from within the group need to guide experiences beyond the current reality. Thus, as the facilitator in this research, knowing my pull to social constructivism, I was mindful that continuous growth comes from seeking new perspectives; looking for outside sources that differed from the current reality/culture enriched this research.

Data Storage and Confidentiality

All data and field text were securely stored. The electronic data and paper documents containing personal information were stored in a locked file cabinet at the researcher's residence. Data that is stored on a USB stick was also securely locked in the file cabinet. Any materials in data format were also be under password protections. I was the only researcher collecting data; therefore, the participants know that only one person viewed their materials. Pseudonyms were used to protect individual identities.

The Research Setting

This study took place in rural and urban middle and senior years' schools in western Canada. The school division was chosen because of its association with the Reading Apprenticeship Framework.

Sampling

The sample consisted of four school teachers who volunteered from a school division in western Canada. In some regard, this sample reflected a type of quota sampling – "dividing the population into groups or quotas" (Remler & Ryzin, 2015, p. 156) – because there are criteria for subject area disciplines and an invitation process in the selection of participants. In addition to quota sampling, purposive sampling – "choosing people who have a unique perspective"

(Remler & Ryzin, 2015, p.158) was used. The study explored these teachers' best practices that included metacognitive strategies and conversations.

A letter was sent to the school division (Appendix C) to identify the research protocol. This letter included the following enclosures: a copy of the MAI, Interview Questions and Reflective Journal Prompts (Appendix D), Copy of Participant's Consent Form (Appendix E). Once approval had been obtained from the school division, a letter (Appendix F) was sent to principals/designates to obtain names and emails of potential participants. Finally, a letter was sent to the potential participants (Appendix G). This third letter asked whether they were willing to participate in the study. This letter outlined the procedures and expectations of the study, including time commitment and approximate duration of the study. The letter stated that the recipients were identified because of their familiarity with best practices (including but not limited to metacognitive conversations and/or metacognitive strategies). The letter also stated that the recipients had been selected because of their desire to create optimal learning experiences that support student success. Once participants agreed to participate in the study, the data collection began.

Data Collection

This research was not attempting to define metacognition, but instead wanted to create a tapestry using a fusion of field texts to make individual stories of metacognitive journeys more visible. There were two main types of field texts: an invitation to create reflective journal during the two-week implementation of a metacognitive strategy within the teachers' classrooms, and transcriptions of interviews post implementation of the strategy. The role of the narrative inquirer was to enter into the field of inquiry, being mindful while collecting these field texts. "Because field text are our way of talking about what passes for data in narrative inquiry and

because data tend to carry with them the idea of objective representation of research experience, it is important to note how imbued field text are with interpretation" (Clandinin & Connelly, p. 93). Therefore, I was mindful of my intent while listening during the interviews. I was organized and prepared myself so that I was attentive and had an open mindset.

This study was conducted via video conferencing, using FaceTime and Microsoft Teams™ technology. I used my stance as constructivist to create a welcoming, face-to-face interview with the participants despite the distance that separated them. Using the video conferencing tools facilitated personal contact and successful interviews by reducing the potential complications of travel and weather. Because the teacher participants agreed to be a part of the study, it was very easy to make appointment times.

Phase One of Data Collection

Phase one of the data collection built the start of the narrative inquiry. Each component of this package had the purpose of activating the record keeping of each participant's thoughts and understandings of metacognition. The phase one package included an electronic link to the MAI, a request to write a prelude reflection and a list of prelude reflection prompts. Here is a description of each of these instruments.

Metacognitive Awareness Inventory. The Metacognitive Awareness Inventory (MAI) was a tool used to activate the participants' awareness of metacognition. It took approximately 10 minutes to complete.

Prelude reflection. The prelude reflection was 1000 words or less summary of the strategies that the participants used previously and a brief explanation of why they had chosen to use these strategies. This took 20-30 minutes approximately.

Prelude reflection prompts. This was the written explanation of expectations: "While thinking about the next two weeks of implementing metacognitive strategies in your classroom, please reflect on these prompts and write a 1000-word reflective journal. You do not have to use these questions, however if you wish you might choose one or two to activate your writing."

1. Describe some of the activation activities that you use and explain why you use them.
2. What is your expectation of student reading during class time?
3. How do you want your own reading to look like in the classroom?
4. What are the essential observations you make while students are engaged in reading during your class?
5. Describe how you use questioning to activate conversation in a group.
6. What do you see or hear that would engage you to start a metacognitive conversation with a student?
7. Think of a planning time. How do you pick a strategy and explain why you picked that strategy?
8. How do you define metacognition? How do you use it in your classroom?

The phase one package included. Phase one package included the following documentation for each participant:

- a letter (Appendix H) thanking the participant for their participation and voice. This letter also explained the entire process of the study
- an electronic link to the Metacognitive Awareness Inventory (approximately 10 minutes to complete)

- a request to share a prelude reflection (1000 words or less summarizing the strategies the teachers have used/are using and a brief explanation of why they choose to use these strategies), to be emailed upon completion to the principal researcher

After the prelude reflection was completed, the participants entered the second phase of data collection.

Phase Two of Data Collection

Phase two of the data collection had the participants choose a metacognitive strategy that they then implemented in their classroom for two weeks. Each component of this package had the purpose of evoking the record keeping of the participants' thoughts and understandings of metacognition as they implemented purposeful strategies into the classroom routine. Communication with me during the implementation of the strategy was encouraged if needed by the participant. I was available for conversation and clarification via email, texting, video conferencing and phone calls. The direction of engaging in the strategies for at least two weeks before the interview was important, because this gave the observations purpose and provided direction for the teachers' metacognitive reflection while they were engaged in the metacognitive conversations and strategies they had chosen. The phase two package included a list of metacognitive strategies and the description of how to implement the strategy in the classroom routines, an option of writing reflective journals during the two weeks that they were implementing their chosen metacognitive strategies, and prompts that would engage this writing. Here is a description of each of these instruments.

A list of metacognitive strategies. A list of metacognitive strategies and explanations of each was given to every participant. These definition and explanations were explained in full within Chapter One. For the purpose of listing the tools within this study, here is a list of

strategies: metacognitive funnel, talking to the text, think-a-loud, double-entry logs, and LINK. The participants picked one or two strategies from the list and they employed them as a routine in their classrooms for two weeks.

A journal package with prompts. The participants could choose to participate in the process of reflective journal writing while they actively engaged in metacognitive conversations/practices for two weeks. The participants were given a journal package with writing prompts included. The journaling was an option because it would benefit the study to obtain these reflections; however, the study did not depend on this tool. It encouraged the tool as a pro-active way of helping teachers track their thinking. The journal writing could assist the teachers in tracking their thinking and making stronger decisions. The reflective journal could also assist in capturing the teachers' voices as they focused on their essential learning outcomes (based on each of the curricular goals of English, math, science, and social studies). As well, the optional reflection journal could reveal language that the teacher had used to activate the students' metacognitive conversations. However, because journal writing may not necessarily be a routine in the participants' lives, it was not expected to become routine during this research trial. Therefore, it was stressed that although the researcher would appreciate these field notes, they were not expected from every participant. The journal package was given as an invitation to the participants to make personal journal reflections during the two weeks. The prompts provided with the journal package included:

- Do I see patterns in what the students are saying and doing?
- Was the strategy I used effective for this assignment?
- How did my mindset affect how I approached today's lesson?
- Is this strategy improving the learning environment?

- Did I do an effective job of communicating my thinking to my students?
- Have I demonstrated my strengths and weakness to my students?
- How am I using my strengths to benefit my students in their metacognitive journey?

The phase two package included. The phase two package included the following documentation for each participant:

- a letter (Appendix I) explaining the expectations with phase two, contact information of the principal investigator, and an invitation via Doodle™ to make an interview time two weeks from the starting date of implementation of metacognitive strategies
- a list of metacognitive strategies and how to implement them in the classroom
- a journal package with writing prompts

After the two weeks of implementing the metacognitive strategies in the classroom, the participants entered the third phase of data collection.

Phase Three of Data Collection

Phase three of the data collection concluded with the participants completing an interview. The interview took place after the two weeks of reflective teaching with awareness and use of metacognitive strategies and the use of metacognitive conversations within their classrooms. The phase three package included the interview questions that would be completed via video conferencing, and a Doodle™ link to set up interview times. Here is a description of each of these instruments.

Interview. Each interview was conducted in a setting of each participant's choice. This social connection was essential, because I wanted to ensure that the participants' voices were

valued and honoured. Every participant chose video conferencing. During the interviews, I was specifically focused on language choices that the teachers recalled using with students who displayed miscues or misunderstanding, and when students displayed an understanding that benefited from a more in-depth inquiry. The meeting place or technology used for each interview was selected by the participants, requiring little to no travel by them. It was imperative that I made an effort to ensure that the participants felt relaxed and that their time was used efficiently. A face-to-face interview was essential, so that I could observe body language and facial expressions, in order to obtain more information around the metacognitive process. Talking and reflecting on one's thinking can be a vulnerable experience, and I wanted to create a safe and open environment that supported free exchange of ideas and emotions. These qualitative questions were used within the interview:

1. Think about a silent reading time within the past two weeks! Describe the activity in the classroom? What were you doing? What were the students doing?
2. Think of a time that you were demonstrating the metacognitive strategy you choose to the class. Share how this demonstration unfolded.
3. Think of a specific activation strategy that you have used and tell me the story of how it unfolded in the classroom.
4. Thinking about the last two weeks. What did a class conversation look like in your classroom? How do you set the stage for a class discussion?
5. Tell me about a time that you read to the class, and included your metacognition. How did that go?
6. Think of a time when a student displayed a misunderstanding. What happened? Tell me the story of this memory.

7. Imagine that you and your students were having a perfect learning scenario. Tell me what that looks like and feels like for you.
8. Think of a time you were demonstrating a debugging strategy. Tell me the story of how that came about and how it unfolded.
9. How long have you been implementing metacognition into your classroom routines?
10. What are the aspects of implementing metacognition into the classroom that you believe benefit yourself and your students?

It was my goal to make the participants feel safe and proud of their work with students.

Phase three package included. The phase three package included the following documentation for each participant:

- an email (Appendix J) with a link with the interview questions, which allowed the participants to preview the interview questions prior to the interview.
- a Doodle™ link to confirm the interview times

This phase concluded the formal collection of data from each participant.

Phase Four of Data Collection

Phase four of the data collection is the bridge that connects the collection of the field text with the data analysis. Prior to analyzing the data, the direct transcriptions created would be shared with each individual participant who requested. None of the participants wanted to see the transcripts. They all expressed a feeling of trust and encouragement around the research. Therefore, the phase four communications with the participants included:

- a letter (Appendix K) thanking the participants for their insight and reflections

Therefore, the data collection was completed once the transcriptions were made.

Data Analysis

The transcription analysis provided a tapestry of stories that reflected teacher understanding of metacognitive strategies and their perception of student success: perceptions of gained knowledge, recognition of the teachers' stance, and understanding of their professional practices. The analysis started as I personally transcribed each interview. While I listened and typed, I jotted down notes of interest. Once I had completed the first teacher's transcription, I had a baseline of vocabulary and scenarios that were directly speaking to the teacher participant's awareness and actions around metacognition. Upon transcribing the second teacher's interview, vocabulary and scenarios aligned with the first interview. By the third and fourth interviews, there were clear and common threads that became the six threads of teacher practice involving metacognition within this research. My narrative inquiry voice interwove four unique tapestries of teachers' metacognitive narratives, using the six threads found in this research as I reflected on their use of metacognitive conversations and metacognitive strategies within their daily practice.

Limitations

The findings of this study have to be seen in the light of two limitations. First, the research had a quota purposive sample size that may have contained bias. Second, the qualitative analysis of the narratives could also have contained a bias because it was seeking only the teacher participants' voice and there is an omission of student voice.

The Quota Purposive Sample Size

This research had a small sample size. In some regard, this small sample may reflect a type of quota sampling – "dividing the population into groups or quotas" (Remler & Ryzin, 2015, p. 156) – because there were criteria for subject area disciplines and an invitation process

in the selection of participants. The sample size was limited to four participants in order to keep the study's scope realistic for its objective. The quota criterion was that of middle and senior years' school teachers. The quota sample was created in part by the selection of teachers who had taken the Reading Apprenticeship training. The framework of this study created stability around terminology while interviewing and collecting participants' reflections. However, using a broader scope of participants who may or may not have had RAF training could have yielded a wider range of responses.

In addition to quota sampling, the interview collection used purposive sampling – "choosing people who have a unique perspective" (Remler & Ryzin, 2015, p.158). When identifying the teachers who participated in the research, their participation in Reading Apprenticeship training was an indicator of who could be included in the group. Therefore, this quota sampling may be considered biased because of the research participants' common language that resulted from their metacognition training, leaving out the possibility of hearing metacognitive reflections by teachers who did not have RA training.

The sampling bias was that these teachers had an insight to understanding the significance of student engagement, and had either a systematic approach to attaining this or a unique mastery in creating a class climate that promoted connections between prior knowledge and new knowledge. The involvement in this study also may have affected the attitudes that the teachers had toward student engagement, making them more aware of their influence and therefore enhancing their practices.

The Qualitative Analysis of the Narratives

The primary limitation is that the qualitative analysis could contain a bias because it omitted the student voice. My goal was to study the impact that teachers' metacognitive

awareness had on their use of the metacognitive conversation and metacognitive strategies within their classroom. Ultimately, the research aimed to uphold the practice of metacognition within the classroom because the literature, as described in Chapter Two, indicated that students benefit from metacognitive practices. Therefore, although the goal was to track teacher metacognition, this research may have made a positive impact on the students, as well as increase the awareness that the teacher participants had of their professional practices.

The stance of the student would have been good to hear; however, activating the students' voices might have blurred the focus of this study, which sought to capture the internal dialogue of teacher participant metacognition. Therefore, I observed only each teacher participant's understanding of student success, because this directly affected the teacher participant's next steps in providing interventions that affected the students' learning as perceived by the teacher participant. As students experienced failure or success, they might have demonstrated apathy, which may have shifted the teacher participant's attitude, which would have affected the teacher participant's stance or ability to analyze needs or next steps. It is important to remember that a researcher's stance on learning may be very different from the stance of the research participants. Therefore, this study respected that each student's voice was heard simply through the participant's observation. I was open to the possibility that an opposite bias may emerge within this research, because "only the participants with the fixed mindset showed the decline" in Dweck's (2008) study (p. 57). Considering the circumstances of many other variables in a participant's life, a negative bias toward metacognition and metacognitive conversation could influence the results. I acknowledged that I was a narrative inquirer who observed by listening to hear the participants' understanding, and then created a tapestry of stories of each teacher participants' metacognition.

> Thinking about an inquiry in narrative terms allows us to conceptualize the inquiry experience as a storied one on several levels. Following Dewey, our principal interest in understanding experience is the growth and transformation in the life story that we as a researcher and our participant's author. Therefore, difficult as it may be to tell a story, the more difficult but important task is the retelling of stories that allow for growth and change. . . . [I]n the construction of narratives of experience there is a reflexive relationship between living a life story, telling a life story, retelling a life story and reliving a life story. (Clandinin & Connelly, 1992, p. 71)

Thus, this research sought to create the reflections of the teachers' internal dialogues, not only to provide for better metacognitive understanding but also realizing that this research may enrich classroom practices and success for students. However, one must consider how the limitations of the small quota sample size and the possible bias of the analysis may have affected the results.

Chapter Summary

Chapter Three outlined the epistemological and ontological stance of the research, which led into the methodology choice of the narrative inquirer. The chapter then outlined the research method of this current research by restating the problem and the questions, reviewing ethical considerations, and speaking to data storage. The chapter then described the research setting, the sampling, the data collection, and the analysis of transcripts. Finally, the chapter concluded with the limitations of the research: the small quota purposive sample and the omission of student voice in the analysis.

Chapter Four outlines the findings collected through the interview process: capturing the memories and reflections around metacognitive conversations and strategies within each participant's classroom.

Chapter Four:

The Research Findings

Chapter Four outlines the findings collected through the interview process, capturing the memories and reflections around metacognitive conversations and strategies within each participant's classroom. Chapter Four first introduces the four research participants. Pseudonyms have been used to preserve the identity of each participant: Addison, Bradan, Christopher and Daniella. The interview responses reveal how metacognition and metacognitive strategies were implemented and impacted the teachers' perceptions of student achievement. The interview responses are formatted so that each participant's reflection can be heard directly after the posed interview question. The chapter concludes with a chapter summary, leading into the six threads that connect the findings from the research.

Research Participants

The four participants willingly shared their metacognition and told stories of the metacognitive strategies working in their classrooms. Addison, Bradan, Christopher, and Daniella had taken RA training. They were teaching in various leveled classrooms within urban and rural locations within southern Manitoba.

Addison

Addison taught English language art (ELA), math, science, social studies, and art to grade 5 students in a German community found in southern Manitoba. Her small town had about 600 people. Her K-8 school population was about 160 students, and they had one class of every grade. They had several students who would fall under EAL criteria because they came from a Low-German background. Although students might have been fluent in English, they certainly had parents and family that communicated with them in Low-German more than English, or as

much in both languages, daily. Addison and three colleagues had recently taken the Reading Apprenticeship (RA) training, and so this group of four collaborated and regularly reflected on their metacognitive practices. This small group was less than half of the staff population, and Addison believed that the early years' teachers of her school had used metacognitive strategies that were more suited for their younger students.

Bradan

Bradan taught social studies and math to grade eight students in a K-12 school in a small southern Manitoba town. His school had a student population of around 225. In his grade 8 classroom, there were 26 students, which would be considered a big class for the school. The average class size would probably have been 16 to 17 students. Unlike Addison, Bradan was not sure whether other teachers at his school would know what metacognition meant. Four teachers had taken the RA training, and this group got together once every six weeks. This group was also supported by a divisional literacy coach, who came in and helped to facilitate reflections of the teachers' practices. Because this group supported each other through the various metacognitive strategies, Bradan considered metacognition and its use within his school a newer concept. The administration supported this group of teachers by giving them four days in the fall and four days in the spring, dedicated to observation: "We go in and observe each other, and we debrief with the support of a literacy coach. We are working toward placing metacognition at the centre of our lessons, asking [metacognitive] questions throughout the lesson, instead of just at the end. Trying to establish our metacognitive practice throughout our lessons, making it more than just an exit slip." He believed that metacognition was a priority within his school because their Reading Apprenticeship meetings had been happening before the regular school day. Those morning meetings demonstrated the dedication those teachers had toward improving

their practice, because they were giving of their own time to collaborate around metacognitive strategies.

Christopher

Christopher taught multiple grades (7-10) social studies, ELA, art, drama, and information and communication technology (ICT) at a school that had 350 students from K-12 in a small town in the southeast corner of Manitoba. He had taken the RA training approximately five years previous to the research. Christopher believed that his school had a positive mindset about metacognition and that most of the staff believed it was a useful tool. He said, "I think a lot of teachers actively are engaged in talking about metacognition with their students. We have talked about it a lot in our school division over the last couple of years." He believed that the use of metacognitive strategies in the classroom was driven by the teachers' knowing that it was beneficial for their students. Although he did not speak of committees or teacher groups that were actively reflecting on their personal practical knowledge with metacognition at their centre, he stated that "It's just kind of what we do!"

Daniella

Daniella taught grades 9 and 11 English, grades 9 and 10 Reading Is Thinking (RIT), and senior (grades 11-12) musical theatre in a large, high school. The population of her school was approximately 1100+ students, with 60 teachers and 20+ educational assistants (EA). Daniella knew of three other staff members who had taken formal RA training. The teachers who had taken the RA training talked and reflected together because it was central to what they were doing daily. However, they did not get together as a regular Professional Learning Community (PLC) to improve their metacognitive practices. "We are an unofficial group that really supports

each other." She thought that 50% of the teaching staff knew about metacognition. However, she was unsure what population were using it as a daily strategy to deepen student learning.

Interview Narratives

Interview responses are the narrative captured from the transcription of the interviews that were done through Facetime and Microsoft Teams™ conferencing. Each response follows the interview question consistently in the same order: Addison, Bradan, Christopher, and Daniella.

Question One

Think about a (silent) reading time within the past two weeks. Describe the activity in the classroom. What were you doing? What were the students doing?

Addison. Silent reading time had a natural fluidness in Addison's classroom. Students engaged in books with a sense of enjoyment; some would be enjoying a book, some appreciating the electronic device that would have only been available to them within the school. For the most part, they would all be reading or quietly having conversations in pairs about a book. "Some of them will just sort of naturally pair up with each other and have a little quiet conversation or share a book." She expressed wanting to promote a natural sense of wonder around books and reading.

She used this silent reading time to check in on students and focus on individual students reading needs. An EA was also actively engaged in reading with a group of students with a set purpose/focus. Addison's usual reluctant students were known to her, and she had a firm grasp on how they tried to avoid reading. She used firm boundaries and a sense of humour to keep them engaged. "My goal has been to spend about two weeks targeting something and then move on to somebody else. However, my two weeks sometimes stretches out a little bit." Addison

acknowledged that automaticity and habits sometimes took away from focused sessions with students and that, sometimes, too much time passed without a metacognitive check-in from herself. “I have about four students who stand out right now as struggling readers. I'm trying to rotate them through having some one-on-one time with me or the EA.” She noted that sometimes she felt the need to be more intentional with her time with these students. This purposeful reading intervention was an aspect of Addison's reading time that she continued to work on improving.

Silent reading in Addison's class was a community event in which reading was modelled, supported, and encouraged.

Bradan. Silent reading in Bradan’s social studies class had a set purpose. He shared a story that had the students going back into Ancient Rome. The purpose of the silent reading time focused on these two questions: “How do you know what you're reading is a fact?” versus “How do you know if it's been embellished?”

Bradan talked of the importance of scaffolding the students’ reading and thinking. They used the grade 8 social studies textbook, individual stories, and news articles in magazines. He shared stories and readings about the death of Julius Caesar and how he had done an activation activity of who Julius Caesar was.

His scaffolding led the class into a silent reading time in which more in-depth reading took place to distinguish fact from embellishment. The students all had their reading material, and they each had made T-charts. “We have been using a straightforward T-chart to track our thinking. To get the students to track their thinking during reading, I prompted them with: How do you get your information down? How do you know which knowledge is necessary? On this T-chart, we also used sticky notes. As the students were reading in their textbook, they would

write down a question or what they're thinking, like using some of the Talk to Text strategies to track their thinking."

Bradan's silent reading time was not always silent. It was often scattered with time for clarifying conversations. He recalled working with the students on a worksheet before reading: having the students think and talk about "What is a fact?" and "What do we know a fact to be?" He recalled a conversation with a student who took their knowledge of math to explain their thinking around defining *a fact*,

Bradan: "What is a fact?"

Student: "Well, a fact can be like a math answer! For example, a math fact is 6 multiplied by 7 is 36. This is a math fact!"

Bradan: "Why is that a fact?"

Bradan was gently guiding the student into deeper thinking, probing them to answer the question with a more profound sense of knowing. Bradan reflected, "Just asking all those who, what, why questions to the students instead of telling them."

Bradan described how his silent reading time had quick and quiet conversation times called elbow partner talks. "We do turn-and-talk quite a bit. They turn and together come up with a definition. We then chart those up on the board, write them all down, and then come up with a class definition." Bradan recalled, "The class definition was a fact in social studies, is something that can be proven beyond a reasonable doubt." He marvelled at how the students wanted to have *doubt* in their definition because "they said in their mind, history does change." Bradan continued the story of silent reading within social studies as they discovered and defined what embellishment meant. "We chose the word embellishment because we didn't want to use

fiction, because the story of Julius Caesar was not made up. So, the class came up with embellishment because it was making the story sound better."

After all of the scaffolding, the class then read a three-paragraph story about the death of Julius Caesar. As they read, they pulled out "What are the facts we know?" and "What are the embellishments?" He described how the story was read once quietly and individually, then with a partner, all the time recording on their T-chart all of the facts and embellishments they found with their partner. Then they went from a group of two to a group of four. And then they did similar recording the facts and embellishments. After the group of four, they did a quick debrief as a class "What do we have?" and "What are we thinking?" Bradan also described how he and the EA were interacting with the students, trying to get them to think about why they are recording their thinking.

Bradan recalled that collaboration and community were important to incorporate in the classroom reading routines. He expressed that he practised "elbow conversations" because the students needed to work on their communication skills. He believed that silent reading became more impactful when collaboration and communication skills were a part of a silent reading routine. Bradan's routines around silent reading had a purpose, and the silent reading time had more impact on student understanding.

Christopher. Silent reading time, in Christopher's class, had all students reading for the most part. It was a time when students were individually engaged in a book of their choice. He recalled that he might have had a few students who became off task and needed a gentle reminder to return to reading. He described a calm room in which he modelled reading himself. There was an awareness of chunking time. "I have a few that may not stay on task. They can do

it in short chunks, but then they need to be reminded to refocus and get back on it." He described that his students were usually compliant and listened well.

Daniella. Daniella, who taught multiple grades in high school, started each of her classes with 15 minutes of silent reading time (except for her musical theatre class). She recalled that silent reading looked differently within each classroom. "The grade 11 classes usually settle in and read, except for a handful of kids who are reluctant readers! In an ideal world, I would be reading at the same time as them, but alas, it was early in the semester, so I would spend time walking around and checking in with the kids and encouraging the reluctant readers: What are you reading? and How do you like it?" She recalled the need to engage the reluctant readers with little conversations to create a relationship. She also recalled how the routine improved from September to the end of the term.

Daniella also shared the importance of having students create personal reading goals, which helped the reading because it then had a purpose for the students. She shared the story of one reluctant reader, "His goal was to read one page. And you know, he was doing it! So silent reading can be done, and he was doing his goal. We had gotten to the point where we were ready to move to the next stages (in that morning class)."

She recalled that silent reading looked very different in her grade 9 Reading is Thinking class. "We just ended up reading aloud together. Independent reading wasn't happening. I could get them to flip through books! That was the best we could do there! I would generally read aloud to them."

Daniella also reflected on how the time within the day presented different challenges to her silent reading routines. "My period 5, after lunch class of grade 9 students, took a little bit of time to settle because they were pretty hyped up from lunchtime. Eventually, we could get them

to settle! However, I had one boy, at first who wasn't reading at all, but then I found him the audiobook version, so he actually would put his headphones and be listening/reading!" Tackling the different needs of students was a part of Daniella's struggles and successes in creating successful silent reading routines in her classroom.

Question Two

Think of a time that you were demonstrating the metacognitive strategy you choose to the class. Share how this demonstration unfolded.

Addison. The metacognitive strategy chosen by Addison was Talking to the Text. She demonstrated this strategy with a short passage of text from a personal novel that she had been reading. She recalled, "I found myself having to go back and rereading this passage a few times to make sense of it because the novel was set about 300 years ago. It was an official government message about a battle. The gist of it was not that complicated! It was primary, but the words; there were so many words trying to say this simple message." This authentic reading struggle inspired her to share her metacognition with her students.

She used the document camera to put the text visible to all students on the screen, and she talked through her thinking using the first short paragraph. She recalled that while she was sharing her thinking, she paused and the students started to jump in, sharing their thinking. This gave Addison an increased sense of confidence because she knew that the students were highly engaged. They continued with the Talking to the Text strategy, which highlighted a misunderstanding around the word *engagement*. A discussion ensued:

Addison: "What do you think of when you read the word engaged?"

Student: "Well . . . people getting married."

Addison: "Well, that doesn't make sense! Right?"

Addison recalled how the Talking to the Text strategy opened up opportunities to notice their thinking. Addison expressed how reading was complicated. The class discussed how words could have multiple meanings, and that the work of the reader was to identify what makes sense and to understand the context. She described how the class was starting to pick up on what she was doing with her thinking, and she also described how she annotated on the passage as she read.

The next step of the Talking to the Text strategy was then releasing the remainder of the passage to students. "Then I just gave it to them to go on with a partner, and they easily could!" In the end, I said, "So, what happened in this reading passage? And they figured it out! But, I think it mattered a lot that I had told them, *I struggled with this*!"

Addison realized that a short and challenging section of a novel was an excellent way to teach Talk to Text. She shared her own struggles and vulnerability, which demonstrated authentically that even adults need to use their metacognitive awareness to comprehend fully while reading. This vulnerability also helped to set the stage to share understandings or misunderstandings in the safety of her classroom.

Bradan. Bradan recalled a demonstration of Talking to the Text that he did with a class during a September day, shortly after the first time that he had taken the Reading Apprenticeship Training. He described how he had the document camera set up. He started reading and sharing his thinking about an article. He shared everything going through his mind. He was circling everything and annotating his thinking in the margins. He recalled, "I just dove right in. And by the end of it, I realized that I showed them way too much at once. It was like . . . a question here, and an exclamation here and underlines and circling." He had realized that the students were lost and overwhelmed. He then decided that he needed to pick just one aspect of his thinking: he

chose to question. The next lesson had a focus or purpose on the Talking to the Text: "How do we pick up the questions we are thinking about when looking at a new article?" Bradan recalled how this focus on one aspect of thinking was essential to creating success using this strategy.

Christopher. Christopher recalled that his use of metacognitive strategies tended to be at the end of activities with his groups. "I do this to get feedback on what the students have thought about the process." He shared how he modelled the reflection as a natural process. He described this reflection by having conversations with students that start with a prompt, "This is what I noticed about how it went" or "In reflection, here are some things that I would change." And then he would invite student reflections with, "What is your feedback?" He created a reflective conversation. Christopher talked of the need for simplicity and not creating more paperwork for himself or the students. He reflected that this routine whip-around had become a part of the students' routines and that they appreciated that their voices mattered and that there was a time to hear their reflections.

Daniella. Daniella's metacognitive strategy revolved around an inferencing strategy: "What does it tell us?" "What does it not tell us?" She recalled a story of the class looking at an article of the week, which was about a protest. They started by looking at the photo and what the caption was saying. On the board, she had written "What is it saying?" and "What is it not saying?" The gist of the article had projected a tone from the Prime Minister of Canada, but what the article was saying was that the prime minister was being ridiculed for his statement. This became enlightening for the students, and an Ah-Ha moment for Daniella.

Daniella recalled that this process was useful not only for the students, but for her "because inferencing is something that I do unconsciously, and so it was important to see this process unfold for the students and to see the deeper connections they were making." She

continued to reflect, “I tend to whiz past these moments, so it was helpful for all of us to see the impact of slowing down and tracking why the tone of the article can make a difference to our thinking.” In her reflection, Daniella was in awe of how much thinking was revealed by just looking at the picture and the caption, and how much deeper the students then went within the article. “This was very cool for me. The image was the woman sitting with photos of the murdered and missing indigenous women. They were singing and creating a memory. The kids saw this and expressed their confusion, as they thought the protest was about a pipeline. This was interesting. Seeing their process: the moving away from thinking of a pipeline to their thinking towards the intended political thinking.”

Daniella had created a safe environment that supported metacognitive conversations. These metacognitive conversations created a deeper understanding of tone when the understanding of context was addressed.

Question Three

Think of a specific activation strategy that you have used and tell me the story of how it unfolded in the classroom.

Addison. An activation strategy that Addison used often was a Know, Want to know, Learn (KWL) chart. She described how she mostly used the first two stages of the KWL chart. “We usually don't get around to the learned part, but we will start with what you already know about a subject.” Addison recalled the growth she saw in her teaching through the use of this activation strategy. “It's funny because I've heard about KWL for all the years I've been teaching, but I feel like this year, I'm using it in a way that has more meaning for the students. I see why this activation matters and how I can productively use this to benefit students.” She described how activating students with what they already knew invited many voices to enter the

classroom conversation. "The reason I like this activation is because I feel it gives any of the students access to participating." She spoke of using this activation during their body systems unit in science before discussing the digestive system.

> I had them write a list: What do you already know about the digestive system? My thinking is that they all eat, so they all have something they should be able to say. Then I'll usually pair that with give-one get-one, where they'll get up with their list, and go around the room collecting others' thinking. I'll tell them by the end of that exchange they need to have at least three things on their list, giving them a focus or goal.

Addison addressed activation and ensured that all students participated in this activity.

She described how some students tried to avoid participating, and this activation, coupled with the give-one get-one, increased student participation. "I've been finding that this activation is a perfect way for those kids, who sit there the whole five minutes thinking they don't know what to write down, but then they hear things . . . and then they are saying, *Oh yeah, right! I knew that*!" She described how she observed all the students writing ideas down, and in the end they all contributed to the whole group conversation. However, her routine of activating students into deeper understanding did not stop with just a group conversation. She described that during the large-group conversation, she encouraged them to continue to add to their lists. "I will encourage them: If you hear something good, write it down! It doesn't hurt to have as many as you can get." This exchange with peers and paper was her way of getting them to keep adding to their lists; this was her way of deepening their connections to the topic. These were strategies that Addison found increased student engagement.

Addison continued to describe how a similar routine of thinking and give-one get-one are used with the "Want to know" section of the KWL chart. "What do you wonder or want to know

about this topic? Write some things down, then talk to your elbow partner, and then we share it out. They start to get more curious and ask more questions with this stage." Addison noted that these routines promoted the need to listen to each other. Students were finding their voices, and they were learning the aspects of listening that increased their understanding of a subject. Addison described how she had focused on improving this routine within her classroom this year. "I had not done it in my classroom before this year. I had done it as a participant at professional developments, and I feel like it's such a good way to engage thinking in the kids because I have some kids who are just very reluctant to write. It is such a good opportunity for me to hear what they're thinking, too."

Bradan. Bradan recalled an activation strategy that he consistently used with a group in his grade 5 class. When the students came into math class, they engaged in a brain teaser on the board. He recalled that earlier that year one student said, "Why are we doing this? This isn't math." And he replied, "It is math! You are problem-solving right now." Bradan spoke to how this activation led to terrific conversations. He recalled that he continued to use this activation with his current grade 8 students, usually with more complex problems. He spoke to the resilience that grown within the older group. "It might take them three or four days to figure out the brain teaser." After a couple days, some students would have completed it, and they would wait for a majority of the class to complete it also before having a full group discussion. Bradan recalled the keenness of a couple of his students who would be determined to figure out the brain teaser. Bradan added that his activation brain teaser was always accompanied by other work posted on the board beside it. When students completed the brain teaser, they continued with the other work. When the brain teaser stumped students, they had more work to move their thinking

on. The activation became a seamless routine that guided the students into their math thinking for the day.

Christopher. Christopher described an activation process that he did to engage the students more deeply into historical fiction. This activation was thoroughly planned with the purchase of many different picture books written by great authors and bought specifically for this process. The books were purposefully chosen to activate multiple reading stages. He set up different stations around the room. He described, "We were looking at the story itself, which was historical fiction, and then we were also looking at some story elements, which we were going to look at more deeply with the novel study." Christopher highlighted that the stations with the picture books were a more neutral way for any student to access the story because the picture books were shorter text; even the reluctant readers could become activated. Christopher recalled the level of enjoyment and participation.

> I believe that it helped that the process had them getting up and moving around the classroom to do the different stations. This is not something I'm comfortable with because it takes a lot of work, but it was good. They were engaged with it.

Daniella. Daniella described how she activated students consistently with quick writes. She usually had a question that started the students' quick writes. The specific story highlighted was when she and the class were going to read an article about cell phone usage in the classroom. She had the class write a quick write with the question "Do you think cell phones should be in the classroom?" She set her timer, and the students wrote. The routine continued with a share of their writes with their table groups. Then the class formulated their thinking into a pros and cons campaign. They made big pros and cons lists at their table groups, and then she shared several articles that they read over a couple of days. "Every time we read a new article,

we would return to their original pros/cons list, and then we had a big debate." In total, they looked at several articles and also went into policies from different schools. Daniella was excited by the engagement of every student. She recalled how this activation created intrinsic motivation for the students to return to their individual quick writes with the focus on whether their stance stayed the same or changed, and why. Daniella chose this activation to lead the students to synthesize their ideas with more in-depth thinking. This activation supported their thinking process so that they could use their reading as evidence of why their stance had stayed the same or changed.

Question Four

Think about the last two weeks. What did a class conversation look like in your classroom? How do you set the stage for a class discussion?

Addison. Addison spoke to the fact that she and her students had conversations all the time, and yet she had trouble picking out a time when she crafted a discussion instead of it just happening. She spoke of a routine that she had within her classroom that had students turning and talking to an elbow partner before larger group discussions. "I want them to have had exposure to something, and then that way they again can say their idea or their partner's idea, but regardless, they can take credit for it." In her group of students, she described that most, if not all, of the students, participated. "It's a pretty big bunch, and there is fair participation. I do see the same few [students] are the more reluctant ones." She spoke to how the routine of turn-and-talk helped these reluctant students who were not always tuned in, because it gave them a safe place to share before a large-group discussion. Addison described how she tried to limit her role in the turn-and-talk conversations and added that these couple conversations enabled her to walk around and listen, checking in on students' thinking. She confided that stepping back and letting the student take control was an aspect of her teaching that she wanted to improve. When she did

step back, she heard excellent questions and ideas. She could probe thinking with questions – "What do you think they mean?" and "Why do you think that is happening?" – alternatively providing opportunity for the students to be the ones posing more profound questions. She recalled that the sharing of ideas was also promoted in her classroom as the students did a lot of partner reading and partner work. She recalled, "There are a lot of small conversations happening, or small groups because they are sitting in groups at their desks. So sometimes great discussions are going on that I am not a part of – which is good! I listen in then." Addison also spoke to the importance of setting the stage for students to not feel scared to make a mistake. She said, "It is so important! I think we have done, and we do, so much work together that they are not afraid to get feedback from each other. Moreover, they see the value in what other students think." She recalled this story.

> Today we had somebody from our local radio station come to our school. They record the kids' reading the school day calendar, and I have a group of keener kids who wanted to do this and wanted to do it well. We have been practicing these little scripts for a week. I told them that they do not have to memorize it. The first thing they did that morning was keyword practice, and if you thought somebody was talking too fast, they needed to tell them that. They were giving each other feedback, and they were okay with it! None of them were hurt by other students' comments. They were taking the feedback as essential to doing a good job. I think we have done so much work together that they just see the benefit of hearing what somebody else is saying, and do not take it personally or as a personal attack.

Addison's story demonstrated that her students trusted each other, and they trusted a process that included a time to listen and a time to share their thinking.

Bradan. Bradan recalled the need to monitor conversations within his classroom because three or four students would have dominated a conversation.

> I think the big thing over the last couple weeks has been being way more intentional about doing the [optimal learning model]: I do, we do, you do, and then following that pattern consistently. I think it allows the students who might not always want to answer, now answer, because they have talked to a partner and then a small group. They are now more likely to give their point of view because a couple of people have validated it before they voice it to a larger group. That has been helpful. Because, otherwise, especially in that class, three or four kids would dominate the conversation all the time. I like this process because I am intentional and saying you do have to wait.

Bradan compared his current group to a group that he had the previous year. He described the group the previous year as a much smaller group, about 13 students, and extremely quiet. They would not participate in the whole-group conversations. "Well, last year, it was a matter of slowing things down a little. That group was just naturally very quiet." Bradan reflected on how the same strategy used to distribute student's voices and control dominant participants could also be used to increase reluctant or quiet students' voices within a very quiet group.

Christopher. Christopher spoke of his intentions around starting a conversation because he believed that through conversation, the students would dig deeper into an assigned reading. He talked about how he engaged students with a whip-around the classroom. "I will try to engage as many people as possible. The talkers will always talk and pipe up. Sometimes I have had students talk first with table partners before going around. Then we go group to group so that everyone has had a voice." He spoke to how this method minimized the talkers and let the quieter ones have their chance within their group.

He described that class conversations were very intentional when he wanted the students to read and pay attention to the author's intent.

> My focus will be who, what, when, where, why, of the article. I will quite often try to get a discussion going after reading almost any text just because I want their input into it before we write about something. Sometimes, the conversation has come about because somebody mentioned their insights after finishing reading and then we dig into that a little more.

Christopher's intentions led the students to stronger connections and more evidence, increasing their engagement in the reading and the framework with which they were building their writing.

Daniella. Daniella spoke of setting the stage for a conversation with a quick write that activated all students, including her introverted students. She spoke to how this helped prepare her students for whole-group conversations. She used writing, elbow conversations, and small-group conversations to scaffold students' thinking before the whole-group discussion.

> I would start with a quick write because that allows those introverted kids to get their thoughts together. I have to work hard at is not letting the loud kids dominate the conversation. There are always really excited students who have something to say! So that is where I find the journals are beneficial: that writing piece provides a means of communication. I read them, and I pull ideas from the quieter kid. I then get the kids reflecting on that by going to talk with an elbow partner for about 2 minutes and then expanding that conversation to a table talk. The students know that somebody at the table is going to report to the rest of the class and then we all speak about it as a class.
>
> One time, we were working on a poem, and the kids brainstormed what they thought the big ideas were, and then every table took a big idea and looked at the poem,

> and then they presented to the class, and then we had a discussion about each main idea, and as our conversation unfolded, we added to our group thinking to the poster. Sometimes we will also do a gallery walk before a class conversation. We put the posters up on the board with the big ideas and their table talk notes, and then they take sticky notes, and they add more ideas and connections to the poster paper. Then we go back and look at the posters, and our class conversations are focused on what the class has pulled out of the poem. This process gives the students substantial evidence to then write about.

Daniella's reflections made it clear that the progression from individual thinking to large-group thinking was scaffolded with the intention to deepen individual thinking. Her routine carefully crafted conversations to strengthen students' thinking and writing.

Question Five

Tell me about a time that you read to the class and included your metacognition. How did that go?

Addison. Addison shared the story of her reading the novel *Marley and Me*. She spoke of her authentic love of dogs and her enjoyment of the book. She relished in the fact that the kids' version of the novel was full of similes and metaphors that gave detailed visual information. She loved how the author used these literary devices to make the dog and his actions more meaningful. As she read, she realized how powerful this novel would be for her students, so she decided to share an excerpt with her class. As she was reading, she shared her metacognition.

> As I read, I found that I would stop and say "Here it said he took off like a rocket ship" and I would pause and I shared with students: "This makes me ask myself what does that look like?" and the students respond with, "super-fast." So quickly, the value of sharing

> my thinking process was just getting them to realize that there was great language in books. If you don't stop to just think about it, you don't realize why it's there or the real value that it adds to the book. There were so many similes and metaphors, and the students started noticing these and attaching meaning to the literal ideas.

Addison realized that her display of metacognition had made a significant impact on the students' thinking because they independently started identifying similes and metaphors that they found in the books that they were reading. They were so excited that they would stop and share what they had found within their reading. One of the students, whom Addison described as unlikely to catch on quickly, used two similes in the next story that he wrote, and she added that he had used them well. She recalled, "I thought that was great! [The students] were paying attention to what they were reading and then using what they were learning in their writing!"

Addison shared her thought process and included why she found the similes and metaphors so impactful. Addison had made visible connections that the students would not have seen without her explicit modelling of teacher metacognition.

Bradan. Bradan described his metacognition within his math class as a part of an Optimal Learning Model (OLM). He described how he shared his routine of reading a piece of writing entirely without stopping. He said that regardless of the subject, math or social studies, this was his preferred way to orient himself to the reading. He said, "I always will read it through once. That's my preference as a reader." This sharing of his preference as a reader was strong modelling of why he made this reading choice. "Even if I am reading a story to the class in social studies, I will read it all the way through. I am honest with them about this, and I will say, "I don't want to stop half-way! I want to read it!" Then, after reading the passage/article, he told the students that he would go back to reread it with a purpose. "In math, I will always go

back and ask, what is the problem asking me to do?" He described how reading a math problem looks.

> I will have the problem on the board, and the students will also have a copy of it in front of them. I will reread it and then say, "I think it is asking me . . ." Then, I will start to chart it out, sharing the strategy I used. Then I go back and reread it again, thinking "What information do I have?" Then I go back into the problem and grab the information I need. Then I will ask, "What operations am I going to have to use to get this?" and in math, I will almost always draw my problem out. I will chart it, I will diagram it a bit, and then I will solve it.

Bradan described that his example was a description of his math "I do" within the OLM. He stated that as he was modelling, and the students would follow along. This part of the math lesson displayed his math thinking. Then the students participated in a "we do" when he would put the students into partners, and they would engage in a similar problem. He gradually released the students into independent work on a similar problem. "Once I am confident with them, then they are on their way, and away they go."

Christopher. Christopher described two tasks in which he displayed his metacognition. The first was a story of his metacognition during a writing task. The class was led through the process of writing a short story. Christopher shared the editing and revising of his work.

> Afterwards, I talked about things that I thought had gone well with the steps that I had done and some of the things that I thought maybe that we stumbled over, or I gave too much time for or didn't explain enough, or something I felt I could change for the next time.

Christopher's metacognition was a reflection after, not during, the process of writing. Another example he shared was also an exit reflection with a drama class.

> We were looking at a piece of a drama, a script that I wanted them to read. It was a contemporary fiction script, and I wanted to read it because it was a different text style than the short story or prose that we had been doing. So, I had them read this script, and they were just flummoxed by it. It just was totally outside of their thinking. It bombed!

He described how the students struggled with it and how eventually the reading had to be cut short. Then he engaged the class in a conversation that started with Christopher voicing that he needed to rethink how he would present this to his students differently if they were to do this again, or if he should even try to do this again with other students. He recalled, "We left it! We just abandoned it, and I said to the class, "That's okay!" He expressed to the students that it was okay to leave a reading, and that experimenting to see if something works or does not work is a part of the reading process. He made the connection between this process in drama to the process of reading a book. "I don't make them commit to the book right away. I tell them to start reading it first for a bit and then decide if it is a good fit. If it is not a good fit, put it aside and say that this one isn't for me." Christopher was making his thinking around preference real and nonjudgmental. He was modelling the hidden process of why one might stop reading and let it go without adverse consequences. He was instilling positive reading behaviours around reader identity.

Daniella. Daniella shared how displaying her metacognition had always been her practice; however, she reflected on how more recently she has been more intentional about her metacognition. She now had a clear purpose for sharing her metacognition and a precise routine that included annotation.

> I [share my thinking] all the time, but if I'm going to be intentional about it, I use the Elmo projection device. We are finding, that the kids are weak at finding main ideas and connecting evidence to the main idea within our school. To support finding the main idea, we have been teaching them to annotate while reading. They are terrible at annotating. There is much metacognition around the annotation. Our students lack that metacognition sureness. Therefore, I am on the Elmo and reading aloud and depending on the focus (it could be vocabulary that we're talking about, or it could be writing technique or why did the author put a dash here), I am demonstrating my metacognition around our chosen purpose. I am modelling by saying "I know this!" "I wonder why they repeated this word so much?" "It must be really important because . . .!" I am modelling that metacognition while I am reading, but I must have a purpose for the modelling.

In this story Daniella displayed her thinking through annotating while she was reading. This method demystified the process of making connections while reading for her students.

Question Six

Think of a time when a student displayed a misunderstanding. What happened? Tell me the story of this memory.

Addison. Addison recalled a story around a social studies text. She recalled this story because she noticed that the same misunderstanding was happening year after year. She described that within the textbook, there was a spread of pages that described short biographies of European explorers who have come to North America. She described the misunderstanding.

> Regarding one of the explorers, the passage says, "He first went to sea when he was 12 years old." The kids were doing an activity; they were writing true/false questions about

> this information and were going to exchange their questions. One of the students exclaimed out loud that this explorer was the first to go to sea. And I said, "How do you know he was the first?" The student responded with, "Well, it says!" and I said, "Is that what it says, though?" Every year I've run into this problem where some kids see *first*, he first went to sea, and they interpret this as he was the first to go to sea. He was the first. We then discuss grammar. I knew there were other kids in the class that had made the same mistakes because I'd seen them write the statement: He was the first to go to sea! And I have to guide them to see that that is not what the passage is saying.

Addison described this scenario as an excellent chance to stop and look more closely at how writers write. She asked students, "What is this saying?" She recalled that she often polled her class.

> Who thinks this guy was the first to go to sea? Then students put their hands up. Then I said, "Who thinks that he went to see for the first time when he was 12?" When I poll the class, I can see that a bunch of them got the misunderstanding. This example was a good chance for us to take a look at how language can be misunderstood while reading. We stopped to look at the text, we could now ask . . . "What would it have said if he was the first?" "How would that have been worded differently?"

Addison's story is an example of how she was able to hear a misunderstanding and then guide the students to correct their misunderstanding by looking more deeply at how words are used to create meaning. The students were able to do this critical thinking around sentence structures and meaning making.

Bradan. Bradan's recollection of students' misunderstandings were also centred within social studies. He thought that his students did not necessarily have a great concept of time or historical timelines. His story of misunderstandings was focused on a student who could not make a connection with the historical timeline of Ancient Rome. They were talking about the military or army, and a student mentioned that the soldiers' use of guns. He explained that they then had to talk about it:

Bradan: "Well, would the soldiers of Ancient Rome have guns? Do they have guns yet in the time of Ancient Rome?"

Student: "I don't know!"

Bradan: "What do you know?"

Student: "Well, guns were invented about 400 years ago."

Bradan: "Well, we are in Ancient Rome, which was 2000 years ago, so would they have had guns?"

Student: "Well, no, they wouldn't have those?"

Bradan: "Okay, so what would they have had to use to defend and attack?"

Bradan's example displayed a probing that engaged the student in thinking more deeply. Bradan described that he was not in the practice of giving students answers. Instead of giving them the answers, their conversations led them to a different understanding. He guided them through their mistake to the proper timeline. He then asked, "Does this make sense?" Bradan also recalled that these clarifying conversations also happened between the students. He spoke to how his role had become that of a listener, facilitator, or one who monitored. He recalled, "Usually, a conversation like this reveals a logical reason why they have made the mistake."

Christopher. Christopher had difficulty remembering a specific example of a student misunderstanding. He thought in general that it happened frequently, when students misunderstood what they had read. He recalled that they usually ended up having a conversation.

> I try to lead them a little bit without telling them. I try to engage by asking questions to get them to think about the details they are given and are the details in the right order. This sometimes helps, and sometimes they can't see the connections: the cause and effect. I generally try to lead them down some of those paths to get to the point where they can see what the connections are. Sometimes it works, sometimes it doesn't. When it doesn't connect, then that conversation takes longer and longer. For some weak students, these conversations are a stretch, so sometimes, I have to point out the signposts within the text.

Christopher understood that some of his students needed scaffolding; therefore, he had to model the thinking for them during their conversations.

Daniella. Daniella jumped right into her memory of a student misunderstanding. As she was reflecting, she was intrigued by the misunderstanding being rooted within the generational differences of the classroom.

> We were reading the "Superman Story" from Reading Apprenticeship. The author, who is from the United States, uses the word *Indian*. So, we were going through the story as a whole class, and then we were just discussing our confusion, and a student asked, "What do you mean Indian Reservation? I thought the character was from India!" He was not the only one thinking this way. They were so confused about what an Indian meant in this story. I was having a moment of awe because I saw this as a super cool generational

> difference. I was just talking like the students knew *Indian* meant Indigenous. They were adorable and respectful. One student broke up laughing when they realized the kids were thinking a person from India, and I was thinking Indigenous. So, I spoke to how proud I was that we were amid this generational, cultural difference. Our kids could not see racism because they made an association with India instead of the racist connection within the US culture of the word *Indian*. It was kind of cool for us to all do that together!

Daniella's reflection demonstrated the safety in which she and her students shared their thinking. There were moments of humour, light-heartedness, and a sense of a safe learning environment within her story.

Question Seven

Imagine that you and your students were having a perfect learning scenario. Tell me what that looks like and feels like for you.

Addison. Addison laughed when responding to this question, because she thought she was blessed to have had a class where they continually had perfect learning scenarios.

> I have a class this year that's unlike any class I have had before. I feel like, or I wonder if some of these successes this year can be credited to Reading Apprenticeship or if it is just this set of students? I think it's a combination!

She then went on to describe her ideal, perfect learning scenario which started with her listening.

> The students are asking each other questions and helping each other figure things out. They are working together. They are wondering, and they are making more connections to what we're doing. The perfect learning scenario would have the students asking

> questions that deepen our learning. The students are experiencing Ah-Ha moments that lead them to wonder other things.

She regarded her role as being a facilitator and guider of learning. Her reflection then shifted, speaking not of her role during the process of learning, but her ideal role during an assessment. She lamented at having to place a mark on the product at the end of a task. She asked why it was not enough that the students were excited about having learned something new. "The perfect learning scenario would be when you're feeling like they, the students, know they've learned. You're not telling them. The perfect learning experience has the students saying, I learned . . . and now I know . . . or and now I wonder . . ." Addison's perfect learning scenario reflected the notion of complete release of learning to the students.

Bradan. Bradan jumped into reflecting on the perfect learning scenario and described "the class as tied into a topic and passionate about it. They just want to learn more." He continued,

> A perfect learning instance for me would be that they all just want to go deeper into it. It is more than just getting the task done! The students are the ones doing, and our conversation is, "What did you learn?" and "Why was that important to you?" That would be the perfect learning experience for me. The students are deep in their own inquiry, and they are diving deeper independently: how, why, what do you mean by that?
>
> They are applying what they know and questioning what they know about the discipline.

Bradan's reflection was a perfect example of how the metacognitive funnel could spiral the students deeper into thinking about how their reading was related to the disciplinary aspects of the subject.

Christopher. Christopher's perfect learning scenario had engaged students that were in discussion with each other.

> It's not silent! My perfect learning scenario would never be quiet. They are actively looking to each other to get ideas and feedback and share things. They build off of each other. And I'm actively poking into each of those conversations, and I am drawn into whatever they are mulling over and contributing. I would see debating sometimes and arguing, and I'm moving around lots and just being engaged with that. That, to me, is much learning, even though we don't necessarily have a product. For me, it is the messing around. I like the messing around part, the experimenting part. Not necessarily the finished part!

Christopher continued to describe the ideal learning scenario as losing the sense of time.

> The buzzer goes, and your reaction is where did the time go? That's what the perfect learning scenario feels like. All of the class gets into that flow, and the time has flown by. It is not crawling, it's not painful! It is engaging! That is the best!

Daniella. Daniella described her perfect learning scenario as a cellphone free zone, a zone where the students are all engaged and interested. She dreamt of a scenario where her students' social, emotional lives were perfect, and life was good for all her learners. She said that this would set the classroom up for excellent learning.

> The students would be learning from each other and making connections and asking questions. There would be contagious curiosity, and they would add to each other's comments and build off each other's ideas. It's all about engagement! And for me, it feels super amazing. I get so excited about this because it does happen sometimes!

She recalled that when this buzz was happening in her classroom, she needed to be ultra-aware that she did not lose focus and that all continued to engage.

Each participant described a version of the ideal "curriculum-as-lived" (Aoki, 1993), and placed themselves alongside the students as they were "working at the very smelting process" (Clandinin & Connelly, 1992, p. 378) of building new knowledge.

Question Eight

Think of a time you were demonstrating a debugging strategy. Tell me the story of how that came about and how it unfolded.

Addison. Addison was not sure of the language within this question. She questioned whether she knew what was meant by "debugging strategy." After probing a little more into her thinking, she realized that she had used debugging strategies when she was listening to students. "I am listening, and I'll hear the students say something that is not correct. However, I understand why they're thinking this way, so then that's when I will pull the group together to tackle the misconceptions." The more she reflected, the more she realized, "I was just thinking of some of the clarifying that we've already talked about in social studies. Those were my thoughts, when I was reading debugging." Addison admitted that this was an aspect of metacognition that she needed to know more deeply. She spoke of wanting to return for more RA training to help deepen her understanding and her daily practices. She reflected on her colleagues, who had also taken RA training.

> When we have been having our Readers Apprenticeship meetings with the people on staff, we have been going back into the textbook and looking at what strategies we have used and then we revisit them to make sure that we're [effectively] using the strategies to best benefit our students.

Addison's willingness to express her vulnerability in not yet connecting language around practice with her current practice was an exceptional example of herself spiralling down the metacognitive funnel to better her personal practical knowledge.

Bradan. Bradan pictured when the class was deconstructing a problem. He described that as a class they were going back, step by step through a problem, so that the students were getting a better understanding of the problem.

> That's the strategy I use a lot right now in math for retry. My class is not the happiest with the order of operations with fractions. So, we do a lot of deconstructing the problem. We go over all the operations that we have to know how to do to tackle the problem. And then I ask them to go back and look at where they went wrong in the problem. And then, the students have to go back to the list and pick what they forgot. When they identify where they went wrong, then we go through the entire problem together.

Bradan described an intensive thinking process that the students engaged in. He spoke to the importance of the students identifying their mistakes and identifying why they made their mistakes.

Christopher. Christopher made an immediate connection with *debugging* as a computer term. Although he did not recall the term from his Reading Apprenticeship training, he made a quick connection to it being a "fix-it strategy."

> That makes sense; I mean debugging in a computer sense is going through line by line and figuring out where it's not working right. I guess the story of me abandoning something is a kind of debugging thinking. It is identifying something that isn't working.

> Then identifying how the something is not working. I don't think I have specific strategies. I will have to look at that again.

Christopher, like Addison, demonstrated a willingness to express his vulnerability in not yet connecting language around practice with his then-current practice. This again demonstrated an exceptional example of the participant spiralling down the metacognitive funnel to better his personal practical knowledge.

Daniella. Daniella did not know these terms.

Question Nine

How long have you been implementing metacognition into your classroom routines?

Addison. Addison said that she had intentionally implemented metacognition in her classroom routines since September of that current school year (approximately six months). She acknowledged that she had used some of the routines in the past, but not in the same way or with the same intentions. Within the six months of that current school year, she spoke to "really getting students to get to their thinking behind what they're doing." She reflected on her early comment within the interview, saying that she had had a fantastic year, and she contemplated the impact of her RA training on her intentional learning goals.

> I do think it is a combination of the composition of the students and my intentions, but I know this year I've gone into everything that I'm doing with a different way of thinking – after the reading apprenticeship training. It's amazing! If you go into the training ready to transform your thinking, you really will. It's incredible what it does for your teaching practice.

Bradan. Bradan reflected that he had been intentionally applying metacognitive strategies in his classroom for four or five years. "My first years were more getting the routines

down. Honestly, my first attempts of metacognition that were intentional, were more exit slips. Now I am hoping metacognitive conversations are more natural."

Christopher. Christopher's recollections had him using metacognition with less awareness early in his career. He recalled metacognition as a "part of the ELA curriculum, the older one because we are now working on a new curriculum, which I've been a part of as well. In the new curriculum, it includes metacognition a lot." Christopher had been asking students to reflect his entire career. He remembered asking questions such as, "What did you think about this?" "How did it work?" "What would we do differently?" His reflection on how the RA training impacted his teaching, led him to a deeper connection to artistic intent. Since doing the RA training a few years back, his intentions with the posing questions had an artist sentiment because students would be reflecting about their art-making: "What would you do differently if you were to make this again?" and "What would be some things you would try differently next time?"

Daniella. Daniella spoke of the comradery around her metacognitive practice. Her reflections were around talking about metacognitive practices with a colleague, and she talked about how her practice shifted after taking the RA training in the summer of 2019. She spoke to how much more intentional she was, because metacognition became the centre of each lesson she planned. "I am a lot more intentional about it now that I have taken the course."

All four participants spoke to the impact that the specific metacognitive training (RA) had on their personal practical knowledge.

Question Ten

What are the aspects of implementing metacognition into the classroom that you believe benefit yourself and your students?

Addison. Addison believed that the discussions that she had with her students were the most beneficial. She recalled having had more insightful conversations the year after her RA training. She observed that she heard more ideas and that the students were then experiencing more perspectives. "I just feel like they're able to hear so many more ideas and perspectives than they would if they just stayed in their head all the time." She also spoke about the power of making a mistake and having created a safe place that accepted mistakes.

> For example, sometimes, what I will do with my "know-it-all" kid, who never has any confusion, I will ask them . . . Where might somebody get confused? It has been an excellent way for them to see that reading requires a lot of thinking. That if you don't know something, you can identify where exactly it is that breakdown is happening. I believe that working with multiple people and seeing the value in multiple perspectives is important. I know some kids like to work by themselves; they don't want to have a partner. However, they do not reject the partner or push back when told to work with a partner. My students have accepted that it's just part of how they learn.

She reflected on the staff in her school who had not taken the RA training and she lamented for the students who might not be actively engaged by their teacher in the same way. She reflected, "We all need training in RA so that we can keep these strategies strong within our students." Her reflection indicated the need for continual practice of metacognitive strategies for them to become a daily part of students' lives.

Bradan. Bradan spoke to the aspect of how metacognitive strategies had slowed the students down. He believed this made space in the classroom for more impact. "It slows the whole process down, which I think is a benefit in that you can see more where students are at. I think metacognition leads to better conversations with your students." He spoke of the built-in

routines that made room for students to talk to someone else, be it a pair-share, group-share, or class-share, and how this benefited the students' solidification of knowing. He reflected from the teacher's perspective, identifying how the metacognitive strategies had made him more intentional. He spoke to how metacognition validated the process of learning because the teacher makes space for the students to think through the process, and the students know that they are not alone in their thinking process.

Christopher. Christopher believed that the process of asking the questions was what benefited his students most, reflecting on what was working for him and what was not. He shared with the students this process and focused them to thinking about that. He reflected,

> I'm a hands-on type of person; I like to deal with the DIY thing. I think that's always something that I think about a little bit in the background: How would I do this differently the next time I do this? I go through the thinking process to get different tools, or I need to learn a technique or look at this idea up to get a deeper connection. I think the same is true in the classroom. It's crucial for the students to think about this for themselves: How would I read differently next time? How would I write differently? My job is trying to get them to just think about that a bit more often.

Christopher's reflection included his school division. "We the staff are starting to make metacognition a part of our conversation more and more. Consequently, I think students think about that more and more." Christopher also reflected on how the students were used to the metacognitive questions and how they were very willing to engage in the metacognitive conversations. "I've noticed that they're more willing to put a little more detail on what they would do differently as we've talked more about it. The students who are well aware of themselves, answer those questions well. The ones that are very superficial anyway or low level,

they don't know how to answer those questions because they're not aware themselves." This point upheld the need to keep practising metacognitive strategies so that all students can benefit.

Daniella. Daniella believed that metacognition moved the students away from the memorizing action and into more critical thinking. She believed that the students would continue to use these metacognitive strategies instead of forgetting what they remembered. "Their learning is higher in the taxonomy. I think that it becomes more authentic for the kids." She saw metacognitive strategies building self-esteem within individuals. The students knew that learning was not a fixed mindset. She spoke of students learning that everybody had an answer, as opposed to just a couple of people who had an answer. She reflected that her students had learned that it was important to take the time to listen to each person's answer. She truly believed that her students were engaged more in learning. Daniella spoke of the benefits for herself and her planning.

> I'm getting more from the students because I'm moving away from that traditional content piece and more into the process of learning. My professional reading has helped me make some bridges about the thinking process: critical thinking, higher level thinking, reading and writing. I see the value of setting up the students and then releasing them right into the metacognitive funnel.

She reflected that she was still early in the mental stage of implementing metacognition, and she looked forward to seeing how the students would continue to benefit from her use of metacognitive strategies in the classroom. "I like [implementing metacognition], but it's sure been a lot of hard work for me. And I believe that the other teachers don't really do it. I am so appreciative of my colleagues who help me through the planning."

Finally, Daniella said that the most beneficial aspect of metacognition within her classroom was the mastery of building and delivering questions to the students. She saw the most impact coming from the questions that she was now proposing to the students. She explained that she thought differently about how to make the questions.

> I had an Ah-Ha moment when my colleague helped me make lit-circle questions. We talked about how the questions need to be more than just about the character in the novel. She made me get the student to explore becoming a character. "Which one would you be and why would you choose to be this character?" The students are still talking about the character traits and all the curricular connections, but now they are thinking at a higher level.

Daniella's metacognitive process was impacting her students. She was seeing deeper thinking from them and more insightful writing.

All four of the participants revealed a growth pattern within their personal practical knowledge as they reflected on what was most beneficial to their students when implementing metacognitive strategies.

Conclusion

The Chapter Four reflections have given a glimpse into the thinking of four Manitoban teachers as they made curriculum come alive in their students' learning, using metacognition at the centre of their classroom. They have demonstrated that their metacognitive awareness involved recognition of what they and their students know and did not know: controlling their mental processes, helping the student take on the learning responsibility, being aware of their learning strategies, evaluating their learning, planning, monitoring and managing their knowledge (Akman & Alagöz, 2018). The interviews captured the memories that highlighted

how metacognitive conversations and strategies are influenced the teachers' planning, classroom set up, and daily routines, as well as giving evidence on the teachers' perceptions of student success.

Six threads of teacher practice, involving metacognition, can be found within these stories, helping to increase teachers' perceptions of student achievement: teachers are readying students for learning, activating existing schema in students; teachers are more explicit regarding student learning goals; teachers are checking for understanding as formative assessment; teachers are asking more impactful questions; teachers are creating equality; teachers are increasing their awareness and ability to employ gradual release of learning masterfully.

Chapter Summary

Chapter Four captured the research findings through a narrative of interview questions. Through the findings, the participants expressed how preparing for and implementing metacognition conversations and strategies had influenced their perspectives of student achievement. Six threads of teachers' practices around metacognition emerged.

Chapter Five weaves together the findings within the context of six threads that arose from the research. These six threads weave a tapestry that revealed how metacognition impacts teachers' personal practical knowledge and their perceptions of student achievement.

Chapter Five:

Discussion

Chapter Five distinguishes six threads connecting the teachers' reflections with the three teacher-focused research themes in the literature review: Teachers' modelling their thinking supports students' understanding; Teacher awareness of reading strategies broadens the reading experience for students; Teacher understanding of self-regulated learning shapes a metacognitive space for students. These three themes are twisted within the six threads found within this current research, enhancing the unique tapestries of how metacognition impacts teachers' personal practical knowledge. The conclusion reveals how these threads create a metaphor for the deliberate teacher practices: a tapestry of deeper understanding within students' achievements from the perception of the teachers.

Weaving the Tapestry

Six threads weave a tapestry of how metacognitive strategies and conversations support deep learning, helping to increase teachers' perceptions of student achievement. Teachers are readying students for learning which activates existing schema in students. Teachers are more explicit regarding student learning goals. Teachers are checking for understanding as formative assessment. Teachers are asking more impactful questions. Teachers are creating equality. Teachers are increasing their awareness and ability to employ gradual release of learning.

First Thread:

Teachers are readying students for learning by activating existing schema.

The participants' reflection revealed their perspective that the importance of readiness to learn had a direct correlation to student achievement. They each spoke of how they helped to develop their students' mental processes or cognitive dimension through problem-solving

strategies (Schoenbach et al., 2012). They all spoke of knowing who their disengaged or reluctant and engaged or eager students were, which helped them to recognize and regulate their thinking in real time (Hughes, 2017). Their reflections unveiled students' refining individual schema (Kallio et al., 2017). Within their reflections, the participants identified the social dimension, the "community building in the classroom, including recognizing their resources brought by each member and developing a safe environment for students to be open about their reading difficulties" (Schoenbach et al., 2012, p.24). Moreover, each teacher's reflection revealed the need to make connections personally and to help scaffold the readiness to learn, in order to ensure that students were engaging their existing schema and sharing what they knew. A connection must be noted to the personal and knowledge-building dimensions within Reading Apprenticeship training as working to benefit students.

Addison voiced her growth in understanding procedural and conditional knowledge. She spoke of knowing the KWL (Know, Want to know, and Learn) strategy for years, but she had not fully employed it until the year after her RA training. She also distinguished that she had a more profound understanding of how she would be using it to benefit the students: "I see why this activation matters and how I can productively use this to benefit students." Addison's metacognitive reflections around the importance of activation, and specifically her more in-depth understanding of the metacognitive process, improved the engagement of her students with the KWL strategy. She planned, monitored, and managed her thinking around the use of the activation for the students' benefit. This reflection revealed Addison's understanding that activating students' existing schema was needed to inform her students' metacognition better.

All participants displayed their knowledge of cognition through their use of activating the existing schema of their students. They displayed their ability to support regulation of cognition

when they scaffolded time for individual thinking. They facilitated an increased knowledge building through the metacognitive conversations and pairing, and small-group sharing of ideas. Their activation routines accommodated fixups of misunderstandings and, therefore, they saw better success in writing after their lessons.

These reflections around the importance of activation were echoed by all participants, which displayed their willingness to apply metacognitive strategies to activate and better prepare students' readiness to learn because they, the teachers, understood the importance of having knowledge about cognition and also modelling the regulation of cognition so to help student achievement.

These reflections demonstrate how the first thread (Teachers are readying student for learning by activating existing schema) has been influenced by teacher understanding of self-regulated learning, which shapes the metacognitive space for students.

Second Thread:

Teachers are more explicit regarding student learning goals.

Interestingly, the reflections around sharing one's metacognition with the class revealed the participants' awareness of how much they were thinking and how quickly they were thinking (comprehension monitoring and evaluation), which created Ah-Ha moments that led them to understand why sharing metacognition helped to make explicit learning goals. The participants' reflections demonstrated a connection to Abromitis' (1994) findings that metacognition encourages "flexible and adaptive thinking" and "modification," (p. 5) which in these reflections helped teachers to define explicit learning goals. These reflections bring to light the idea that the curriculum-as-plan (Aoki, 1993), and a teacher's understanding of what makes success, might need a shift or change in the next moments of curriculum-as-lived (Aoki, 1993). Many of the

shared reflections revealed a learning and recognition to increase the practice of metacognition in order to expand on teachers' personal practical knowledge while teaching students to read challenging texts in their classrooms.

Daniella's reflection of how her inferencing skills were fast and automatic reflects Karpicke and Grimaldi's (2013) research around retrieval-practice. She spoke to how a majority of her students had missed the tone of an article and, had they not taken the time to share their thinking before their independent work, the students would have missed an essential aspect of the article, causing them possible confusion and frustration. However, she was able to shift and be explicit about the students' learning goals because she accommodated and planned for shared metacognition and group sharing of ideas. Daniella's shift in explicit learning goals came from her ability to hear misconceptions, which then directed the next steps. Scaffolding her students, in order to focus on the author's tone, deepened their understanding and their writing.

Bradan revealed how overwhelming tracking metacognition could be as he reflected on one of his first attempts of sharing his metacognition. This exercise of metacognition led him to a more concise sharing of one aspect of his metacognition, as noted by Ozturk (2017), who spoke of highlighting awareness of cognitive activities and utilizing them most effectively. Bradan then gave the students multiple experiences for practicing that one metacognitive aspect of questioning when reading. He had an awareness of how his metacognition was "knowledge-intensive" (Kallio et al., 2015, p. 102); therefore, he applied the dimensions taught during his Reading Apprenticeship training, in order to more powerfully increase the students' capacity. He adjusted the initial goals, and became more explicit and concise, which gave his students more opportunities for success in tracking their thinking.

These reflections demonstrate how the second thread (Teachers are more explicit regarding student learning goals) is influenced by two themes as highlighted in the literature: teachers modelling their thinking to support students' understanding, and teachers understanding the self-regulated learning that shapes the metacognitive space for students.

Third Thread:

Teachers are checking for understanding as a formative assessment.

Each reflection demonstrated a form of metacognitive conversation in real time, which spiralled the students' thinking deeper into subject-specific criteria, connecting their existing schema to new knowledge and thereby deepening their understanding and increasing their success right then (Hughes, 2017; Bing-You et al., 2017; Akman and Alagöz, 2018). Utilizing metacognitive conversation in the classroom makes implicit thoughts explicit (Jones, 2007), and there is "a focus on reading and talking about reading during classroom lessons (which) gives teachers the opportunity to mentor students in the reasoning and problem-solving skills they need to master" (Schoenbach et al., 2012 p. 24). More specifically, participants shared that metacognitive conversations enable teachers to hear more student ideas and more student perspectives, and they hear misconceptions early so that metacognitive conversations can guide students to fix their misunderstanding.

Addison observed, "I just feel like they can hear so many more ideas and perspectives than they would if they stayed in their head all the time," empowering them to deepen their understanding. Bradan reflected that including metacognition "slows the whole process down," which he saw as a benefit because "you can see more where students are." Christopher recalled, "I go through the thinking process to get different tools, or I need to learn a technique or look at this idea up to get a deeper connection. I think the same is true in the classroom. The students

must think about this for themselves. My job is trying to get them to just think about that a bit more often." Daniella's story of a misconception highlighted the importance of checking for understanding in order to deepen learning. Her story revealed how the personal and social dimensions worked together to support context and knowledge-building. Several students had a misunderstanding around the word *Indian* within a short story they were reading. She stated, "They were so confused about what an Indian meant in this story." A safe exchange ensued, with moments of humour and light-heartedness that facilitated a deeper understanding of the author's intent and specific language use. This formative assessment helped to engineer a respectful conversation around word choice, meaning, and context. Had this exchange of ideas not occurred, many students would have written a response completely missing the central theme of the story. Danielle's ability to use formative assessment created moments of listening and sharing, which solidified meaning for many students.

These reflections demonstrate how the third thread (Teachers are checking for understanding as a formative assessment) is interwoven with the teacher awareness of reading strategies broadening the reading experiences for students, and with the teacher understanding of self-regulated learning shaping the metacognitive process for students.

Fourth Thread:

Teachers are asking more impactful questions.

Each participant designed learning moments that wove powerful text and students' thinking by posing questions and creating metacognitive conversations. Conversations focused on how or why students think, probing the students to discover new connections. The teachers were not only modelling the metacognitive process, but they were also doing as Jones (2007) advocated, making real-time connections, encouraging students to consider how or why they

accept or reject ideas. This shift in teaching stance has moved the teacher to a facilitator of discovery. Addison and Bradan asked their students to reflect during metacognitive conversations, encouraging the students to check themselves for understanding. Daniella spent significant time improving her questions in order to activate deeper thinking by her students. Her questions helped to shift her students' stance, placing them central in the inquiry at the inception of discovering how or why they would make choices as they engaged in literature elements. Christopher spoke of the messiness of discovering, and how creative it feels when students can be in the moment, making choices that deepen their understanding.

This thread of impactful questions comes from an increased awareness of the importance of metacognition within the personal practical knowledge of each research participant. Each participant believed that heightening students' metacognitive awareness increased the students' achievement. This reflects the assertion of Akman and Alagöz (2018) that building knowledge within students requires activating both the cognitive regulation skills and the cognitive knowledge.

The participants reflected on how they modelled metacognitive conversations with probing questions, empowering their students to participate more deeply in their knowledge building. The participants spoke of their role shifting away from the giver of knowledge to the facilitator of student engagement. This shift was not created by happenstance, but with intention. Each participant spoke of engaging the students to activate their existing schema, not just determining what students already knew, but ensuring that students were aware of why they were thinking in that particular way.

These reflections demonstrate how the fourth thread (Teachers are asking more impactful questions) has been influenced by teacher understanding of how self-regulated learning shapes the metacognitive space for students.

Fifth Thread:

Teachers are creating equality.

The RA training actively engages teachers in understanding the importance of the social domain. This understanding acknowledges Charles McMurry's powerful declaration that "the teacher is working at the very smelting process, the point of difficulty where new, uncomprehending knowledge meets this tumult of the child's mind" (Clandinin, & Connelly, 1992, p. 378), which when matched with metacognitive conversations and strategies provides equality for students. The social dimension entailed the research participants creating safe places for learners to share their idea production, "integrating the relationship between literacy and power" and developing voice around a text (Schoenbach et al., 2012, p. 25). By modelling and employing metacognitive conversations and encouraging tracking of student metacognition, each participant created equality in the classroom. Each participant spoke of a safe place where students could critically and creatively think, problem solve, make mistakes, and speak through their thinking free of ridicule (Aktag et al., 2017). Each participant spoke of the routines that built student confidence, allowing everyone to express their voice and building a learning community that heard multiple perspectives. Each participant spoke of class conversations' importance, which ensured that each voice was heard, making procedures and norms that supported individual thinking and small- and large-group thinking. The common thread between the participants was that they each believed in building a positive social community. This reflects Borko et al. (2000) and Richmond et al.'s (2017) premise that learning is an active and

social construction. Students have more achievement in shared experiences. Active learning is more powerful than direct instruction.

Bradan's reflection spoke of the diverse needs that were impacted when purposefully building routines around the social dimension. He believed that his students needed this social learning. He had two separate and different class situations that required the scaffolding of how to think and share thinking: the first being a chatty few who monopolized conversations, and the second being an extremely quiet group. In both scenarios, he used his routines of think, pair, share to create equitable learning moments for all. In the one year, this routine helped to quiet some voices and share learning through equitable distribution of voice. In the previous year, this routine built confidence in a group of extremely quiet thinkers.

Daniella spoke of the tracking routines that supported individual and group thinking, which led to better student writing responses. Her scaffolding of productive activation followed by individual reading was supported by her modelling of how to track and support meaningful connections between writers' intent and student understanding. Students were encouraged to share thinking through pairs, small-group and large-group conversations. Students made posters together and then presented their ideas. Students engaged in gallery walks, adding to their thinking and building a deeper connection between the author's choice and readers' understanding, which then supported student writing with evidence of more in-depth understanding.

These reflections demonstrate how the fifth thread (Teachers creating equality has been influenced by teachers modelling their thinking), supporting students' understanding and teachers' awareness of reading strategies, broadened the reading experiences for students. Each research participant used the thread of building a social climate to create equality within the

classroom. This required each participant to have the will and confidence to release control, facilitating their students to create their new knowledge through guided, purposeful practices.

Sixth Thread:

Teachers are increasing their awareness and ability to employ gradual release of learning.

The four participants in this study believed that by scaffolding metacognitive strategies, they were building the skills needed for students to gain control over their learning, releasing them to engage fully in the act of shifting between their knowledge about cognition and their ability to regulate their cognition. This goal of releasing the students was evident in all of the participants' perfect learning scenarios. The participants had the goal of creating a space where their students could engage in conversations, creating inquiry that was supported by a social culture within their classroom. These active learning lessons reflect the research by Richmond et al. (2017), which found that active learning instruction produces higher academic performance than lessons that use direct instruction as formal pedagogy. Schoenbach et al. (2012) expressed how this all starts with the teachers modelling their metacognition to demystify the thinking process for students. Then, following modelling comes gradual release to the student with social supports, echoing Borko et al.'s (2000) research that spoke to teachers releasing control to students. Gradual release implies that the teachers build reading and thinking routines that employ the students to engage their thinking with the teacher and other peers, with the eventual goal of having students lead learning scenarios. This reflects the notions of Fletcher's (2018) research on "help seeking" strategies within the classroom. The participants spoke of students becoming more independent and the feeling created within the classroom when gradual release was successful.

Christopher spoke to the loss of time when the learning space was full of engaged and responsive learners. He reflected on how he felt a little out of his comfort zone, releasing control and having different stations, with students getting up and moving around the classroom. However, he concluded with his delight in how engaged the students were. Bradan recalled that his routines of clarifying conversations were happening without him: students probed each other deeper into their inquiries. Addison spoke to the release of the learning process, reflecting on when the students take total control of their learning and claim their learning. Daniella's metacognition around her teaching practice shifted. "My professional reading has helped me build bridges within the thinking process: critical thinking, higher-level thinking, reading and writing. I see the value of setting up the students and then releasing them right into the metacognitive funnel." All of these reflections echo the research of Borko et al. (2000) that the teachers they were following "talked about 'giving up control' to students as they organized the learning environments in their classrooms to enable students to take a more active role in their own learning" (p. 296). These experiential learning scenarios highlighted how the participants' use of metacognitive strategies and metacognitive conversations within their classrooms led their students to increased control over their learning.

These reflections demonstrated how the sixth thread (Teachers are increasing their awareness and ability to employ gradual release of learning) is influenced by the teachers' understanding of how self-regulated learning shapes the metacognitive space for students.

Conclusion

Chapter Five connected the reflections of the four participants with the research findings, supporting the use of metacognitive conversation and strategies to increase the teachers' perspective of student achievement. The participants' reflections highlighted six threads that

wove a tapestry of how employing metacognitive strategies and metacognitive conversations in the classroom helped to increase their perceptions of student achievement. These six threads were as follows: teachers are readying students for learning, activating existing schema in students; teachers are more explicit regarding student learning goals; teachers are checking for understanding as formative assessment; teachers are asking more impactful questions; teachers are creating equality; and teachers are increasing their awareness and ability to employ gradual release of learning.

These woven threads created four unique tapestries capturing the impact that metacognitive conversations and metacognitive strategies had within each of the participant's classrooms. These tapestries were woven with diligence and care by teachers who value students' voices, student independence and, ultimately, student achievement. The woven images are unique and, upon reflection, upon taking the time to step back and look at the material created, honour the work and impact that metacognitive strategies and conversations had within each participant's classroom.

Each of these tapestries itself had two sides: the participant's perspective and my perspective. As with any beautiful tapestry, one can flip the fabric over and appreciate the weave and how the weave shifts when looking at its underside. Educators continuously try to improve student achievement; this is a common goal. Teachers must continually collaborate and take the time to examine both sides of the tapestry that metacognitive practices make in order to increase their personal practical knowledge of metacognitive strategies and conversations.

Chapter Summary

Chapter Five highlighted how the three main ways teachers influence their students' metacognition, as themes found in the literature review, are twisted throughout the six threads

found in the current research. Chapter Five highlighted key points from each participant within each thread, creating unique tapestries of how metacognitive conversations and strategies influence teachers' perceptions of student achievement.

Chapter Six reveals the conclusion which supports the impact that metacognitive conversation and metacognitive strategies have on teachers' perspectives of student achievement. Also, Chapter Six gives recommendations for future practice and further research.

Chapter Six:

Conclusions and Recommendations

Chapter Six restates the purpose and research questions posed at the start of this investigation. Following the questions, conclusions are made by answering the research questions. Recommendations for future practice and further research are then stated, based on the findings as they lead us to seek ways of improving teachers' personal practical knowledge.

Restating the Purpose and Questions

This study explored how the teacher's understanding of metacognition influences the development of metacognitive strategies and the metacognitive conversation within the classroom. The study explored whether a teacher's understanding of metacognitive strategies and conversations affected the teacher's perspective of knowledge building in students. This elicited the main research question:

- How does a teacher's understanding of metacognition influence the development of metacognitive skills and metacognitive conversations in classroom practices and routines?

Subsequent questions were as follows:

- How does this awareness help to influence the teacher's decision making within planning, classroom set up, and daily routines?
- What evidence indicates that the teacher's understanding of metacognition is making a positive impact on the teacher's perception of student learning?

The current research findings reveal the following answers to these questions.

Main Research Question

How does a teacher's understanding of metacognition influence the development of metacognitive skills and metacognitive conversations in classroom practices and routines?

Conclusion one. A teacher's understanding of metacognition does influence the development of metacognitive skills and metacognitive conversations in classroom practices and routines. Each thread within the findings supports evidence that the teacher's understanding of metacognition influences the development of metacognitive skills in their practices and routines.

Thread one (teachers were readying students for learning) supports that the participants understood that both knowledge of cognition and the regulation of cognition include a connection between the students' personal needs and the social-emotional supports needed to uphold each individual. This thread highlights that learning is a social construct and that learning is influenced by experiences that are impacted by how one thinks in daily living.

Thread two (teachers were activating existing schema in students) demonstrates that teachers understand that in order for students to build new knowledge, the process of learning involves activating prior knowledge (regulation of cognition). Helping students identify their existing schema requires metacognitive processes. Individual participants spoke of their understanding of how the metacognitive activation promoted deeper connections for their students because misunderstandings or clarifications were made when teachers guided the students to clarify their thinking.

Thread three (teachers were more explicit regarding student learning goals) highlighted how modelling, making visible the regulation of cognition through metacognitive strategies, demystified the complexity of metacognition and helped teachers to slow down and make explicit goals so that students could practice regulation of cognition with a set purpose.

Thread four (teachers were checking for understanding as formative assessment) and thread five (teachers were asking more impactful questions) suggest that the participants had an understanding of how the three categories under knowledge of cognition work together to build new knowledge: declarative knowledge, knowing what is to be learned; procedural knowledge, knowing how discovery, cooperative learning and problem-solving build knowledge; and conditional knowledge, knowing the when and why to use learning procedures. The participants reflected on how the knowledge of cognition was exposed through the use of metacognitive strategies and conversation, making regulation of knowledge more malleable for fast and effective feedback, increasing their perceptions of student achievement.

Thread six (teachers were creating equality) demonstrated that the participants were increasing their awareness and ability to employ gradual release of learning. The participants expressed how their understanding of metacognition had influenced the development of metacognitive skills and conversation within their classroom practices and routines, with the goal of students taking control of their learning.

The following examples are evidence supporting that the teachers' understanding of metacognition influenced the development of metacognitive skills and metacognitive conversations in classroom practices and routines.

Addison spoke of doing an activation with more purpose after her RA training. She analyzed how her past experiences were not as successful, and how much more impactful the activation was when woven with think, pair, group share metacognitive tracking of students' voice. Bradan spoke of how, regardless of a class of spirited talkers or extremely quiet students, he was confident of their abilities while employing metacognitive strategies and routines. Christopher spoke to how he modelled his reflections, making his thinking visible for his

students, and then incorporated a whip-around routine that had become a comfort for his students. Daniella remarked on how her understanding of metacognition had impacted her practice through her more in-depth understanding of question making. Each teacher made a shift in their personal practical knowledge because their metacognition had sparked confidence and resilience in them to share their metacognition with their students, thereby influencing their perceptions of student achievement.

Subsequent Question One

How does this awareness help to influence the teacher's decision making within planning, classroom set up, and daily routines?

Conclusion two. Yes, the teacher participants' metacognitive practices influenced their decision making within planning, classroom set up, and daily routines. Evidence that supports this conclusion was found within the tapestry of each participant's reflection.

Participants' reflections revealed that planning with metacognitive practices took time and diligence. They each spoke of planning for specific metacognitive goals and also spoke to how the planning made space for activating student voice with purpose. They spoke of having goals and being aware of what influenced a change in direction or the desire to remain on course, building resilience. The participants relayed stories that involved how they had their classrooms set up to accommodate social interactions better when they were involved in pair- or group-shared activities. Most evident were the daily routines that each participant shared around creating metacognitive conversations. The participants spoke of the scaffolding of students tracking their thinking within T-charts, posters, gallery walks, or whip-around. These practices were supported by think, pair, and share strategies that encouraged students to think individually, share their thinking in a safe place of a pair-share, and share in a large-group setting.

Subsequent Question Two

What evidence indicates that the teacher's understanding of metacognition was making a positive impact on the teacher's perception of student learning?

Conclusion three. The evidence that indicates that the teachers' understandings of metacognition made a positive impact on the teachers' perceptions of students' success lies within the stories they told about students reaching the achieved purpose or deeper understanding around the intended focus. Addison spoke of her perception, after intentionally implementing metacognitive strategies into her routines, that she believed to have her best class of students. She also spoke of using strategies with more purpose for the students, setting them up for more success during an activity. Bradan spoke of using his metacognitive strategies to benefit groups despite the groups' apparent differences. He perceived the social aspect of his metacognitive strategies as benefiting all. Christopher added his perception of the students appreciating the whip-around routine because they felt it validated them by giving them a voice in their learning. Daniella spoke of seeing successes as she reflected on reluctant readers reaching their goal, and she marvelled at how her students' writing improved, surpassing her expectations of grade-level writing.

This research found that teachers elicit powerful strategies to improve students' engagement with the use of metacognitive strategies or conversations, which then led to their students' meeting or exceeding the teachers' perceived ideas of success.

Recommendations

These research findings have been conclusive. Teacher awareness around metacognitive strategies influenced the participants' decision making within planning, classroom set up, and daily routines. Therefore, a teacher's understanding of metacognition does influence the

development of metacognitive skills and metacognitive conversations in classroom practices and routines. The findings also had indicators that implementing metacognitive practices within a classroom increases a teacher's perception of student achievement because these practices make visible the students' thinking, therefore making visible the students' journey to new understandings.

However, this research had a limited quota sample with four participants selected from a group of teachers with Reading Apprenticeship (RA) training. This purposive sampling had a unique perspective because of their training. This RA training created a sampling bias because these teachers had an insight to understanding the significance of student engagement, and each had a unique mastery in creating a class climate that promoted connections between prior knowledge and new knowledge.

The involvement in this study also affected the attitudes that the teachers had toward student engagement. They voiced how the participation in this research heightened their reflective practice, which made them more aware of their influence and therefore enhanced their practices during this research period. Thus, it is thought that the following recommendations for practice and further research be made.

Recommendations for Practice

Three out of four participants expressed that their personal practical knowledge was enhanced by the initial RA training and the collaborative efficacy with other staff members, focusing on improving metacognitive strategies and conversations within the classroom. The fourth participant expressed that although she was not in a formal group, she believed that metacognitive practices were known by a majority of staff. This research suggests that

collaborative work around improving metacognitive strategies and conversations within the classroom would greatly benefit teachers' personal practical knowledge.

Three out of the four participants expressed a desire to retake RA training. Their reflections indicated that their practices were impacted by the training and then again by being involved with this research. They expressed that the initial training was good because it created a shift within their teaching stance. However, they thought that more training would help to solidify and improve their use of metacognitive strategies and conversations, increasing their personal practical knowledge.

There was also discussion around highlighting the need to take metacognition awareness and strategies during the preparation of becoming a teacher within secondary education institutions. Therefore, it is recommended to build collaborative efficacy around implementing metacognitive strategies within secondary institutions' courses and within professional development opportunities in the school divisions of Manitoba. Educational leaders would play a critical role in putting this recommendation into practice.

Recommendations for Further Research

These qualitative research findings were limited to reflections from participants. A deeper understanding of teacher awareness around metacognition could be accomplished if quantitative data from the MAI were used to compare the teachers' awareness of metacognition with their reflections on their practices.

However, these research findings identified the positive impact of the metacognitive strategies and metacognitive conversations within the qualitative reflections of teachers who revealed their perspective that "students are able to catch up in critical reading skills if provided with additional, sustained instruction in small, focused instructional groups" (Torgesen et al.,

2008, p. 63). Therefore, it could be stated that the results of this study improved teaching methods, which in terms of the participants' perspectives improved students' reading skills and knowledge building. This study's results have reinforced the fact that metacognitive strategies and conversations can be successful agents in helping students achieve higher quality standards from the teachers' perspectives. However, further research is recommended that includes not just teachers who have taken RA training; more extensive studies are required to seek teachers' understanding of metacognitive practices.

Further research should also include teachers who have no official training in metacognitive strategies so that a control group can better identify teacher awareness of metacognition and the implementation of strategies based on teacher awareness.

This research also was specific to tracking the teachers' metacognition without the voices of the students. Further research is needed to elicit metacognition from both the teachers and the students in order to appreciate the impact that metacognitive strategies and conversations have on student achievement.

Conclusion

Through each tapestry woven in this research, it is apparent that metacognitive practices and conversations impact teacher planning, class set-up, and routines, thereby positively impacting teachers' personal practical knowledge.

Therefore, the current study's focus on teacher awareness should open an avenue in the literature, which has so far been mostly engaged around students' metacognition as it relates to their academic performance. Making the teachers' tapestry of metacognition visible has revealed the relationship between modelling metacognition and increasing teachers' perceptions of student achievement. This upholds that "high quality instruction enables students of all ages to

construct domain-specific and domain-general strategies, metacognitive knowledge about themselves and their cognitive skills, and how to better regulate their cognition" (Schraw, 1998, p. 123). Therefore, we must promote that high-quality instruction includes metacognitive strategies and conversations.

The literature review spoke to a need to investigate teacher metacognition. Now the research findings support the need for more research regarding teachers as experts in implementing metacognitive strategies and metacognitive conversations within their classrooms, increasing their personal practical knowledge.

Thesis Summary

This study captured the metacognition of four teachers in Manitoba. Chapter One of the thesis outlined the critical elements that deepen our understanding of metacognition and its impacts on learning. Chapter Two was a literature review of teacher metacognition. It outlined the need for more research on teacher metacognition and supported the need for the current research. Chapter Three outlined the methodology of the narrative inquiry and why this stance was so powerful when capturing the inner voices of teachers while they planned, set up their classrooms and facilitated learning. Chapter Four outlined the findings collected through the interview process, capturing the memories and reflections around metacognitive conversations and strategies within each participant's classroom. Chapter Five took the narrative inquiry stance and pulled out six threads common between the research and the findings, creating a tapestry of the teachers' metacognitive process. An analysis of their reflections revealed that the participants' awareness of metacognition impacted their practice and their perception of student achievement. Chapter Six answered the research questions by analyzing the connections between each thread within the literature review and the threads found within the current

research, which revealed evidence that the teachers' understanding of metacognition does influence the development of metacognitive skills in their practices and routines. This analysis built the recommendation that more research is needed to explore teacher metacognition so that further explorations for future practice and further research can increase our teachers' personal practical knowledge.

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Appendix A

Metacognitive Awareness Inventory (MAI)

An electronic version will be made of Schraw & Dennison's (1994b, 1994c) MAI with the instruction to the research participants to answer the inventory while thinking about their own methods of learning.

Mark each of the statements below True or False as appropriate.

1. I ask myself periodically if I am meeting my goals.
2. I consider several alternatives to a problem before I answer.
3. I try to use strategies that have worked in the past.
4. I pace myself while learning in order to have enough time.
5. I understand my intellectual strengths and weaknesses.
6. I think about what I really need to learn before I begin a task.
7. I know how well I did once I finish a test.
8. I set specific goals before I begin a task.
9. I slow down when I encounter important information.
10. I know what kind of information is most important to learn.
11. I ask myself if I have considered all options when solving a problem.
12. I am good at organizing information.
13. I consciously focus my attention on important information.
14. I have a specific purpose for each strategy I use.
15. I learn best when I know something about the topic.
16. I know what the teacher expects me to learn.
17. I am good at remembering information.

18. I use different learning strategies, depending on the situation.

19. I ask myself if there was an easier way to do things after I finish a task.

20. I have control over how well I learn.

21. I periodically review to help me understand important relationships.

22. I ask myself questions about the material before I begin.

23. I think of several ways to solve a problem and choose the best one.

24. I summarize what I've learned after I finish.

25. I ask others for help when I don't understand something.

26. I can motivate myself to learn when I need to.

27. I am aware of what strategies I use when I study.

28. I find myself analyzing the usefulness of strategies while I study.

29. I use my intellectual strengths to compensate for my weaknesses.

30. I focus on the meaning and significance of new information.

31. I create my own examples to make information more meaningful.

32. I am a good judge of how well I understand something.

33. I find myself using helpful learning strategies automatically.

34. I find myself pausing regularly to check my comprehension.

35. I know when each strategy I use will be most effective.

36. I ask myself how well I accomplish my goals one I'm finished.

37. I draw pictures or diagrams to help me understand while learning.

38. I ask myself if I have considered all the options after I solve a problem.

39. I try to translate new information into my own words.

40. I change strategies when I fail to understand.

41. I use the organizational structure of the text to help me learn.
42. I read the instructions carefully before I begin a task.
43. I ask myself if what I'm reading is related to what I already know.
44. I re-evaluate my assumptions when I get confused.
45. I organize my time to best accomplish my goals.
46. I learn more when I am interested in the topic
47. I try to break studying down into smaller steps.
48. I focus on overall meaning rather than specifics.
49. I ask myself questions about how well I am doing while I am learning something new.
50. I ask myself if I learned as much as I could have once I finish a task.
51. I stop and go back over new information that is not clear.
52. I stop and reread when I get confused.

Appendix B
BUREC Ethics Certificate

BRANDON UNIVERSITY

Brandon University Research Ethics Committee (BUREC)
Ethics Certificate for Research Involving Human Participants

The Brandon University Research Ethics Committee (BUREC) has reviewed and approved this ethics proposal in accordance with the current *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2-2014)*, the *Brandon University Policy on Research Involving Humans*, and the *Brandon University Research Ethics Committee (BUREC) Policies and Procedures.*

This approval is subject to the following conditions:

1. Approval is granted only for the research and purposes as described in the ethics application.
2. Ethics Certification is valid for up to five (5) years from the date approved, pending receipt of Annual Progress Reports. As per *BUREC Policies and Procedures*, Section 6.0, "At a minimum, continuing ethics research review shall consist of an Annual Report for multi-year projects and a Final Report at the end of all projects... Failure to fulfill the continuing research ethics review requirements is considered an act of non-compliance and may result in the suspension of active ethics certification; refusal to review and approve any new research ethics submission, and/or others as outlined in Section 10.0".
3. Any changes made to the protocol must be reported to the BUREC prior to implementation. See *BUREC Policies and Procedures* for more detail.
4. Any deviations to the research or adverse events must be submitted to the BUREC as soon as possible.

As per *BUREC Policies and Procedures*, Section 10.0, "Brandon University requires that all faculty members, staff, and students adhere to the *BUREC Policies and Procedures*. The University considers non-compliance and the inappropriate treatment of human participants to be a serious offence, subject to penalties, including, but not limited to, formal written documentation including permanently in one's personnel file, suspension of ethics certification, withdrawal of privileges to conduct research involving humans, and/or disciplinary action."

Principal Investigator:	**September 20, 2019**
Title of Project:	**Teacher Metacognition: Teacher as Curriculum Maker with Metacognition at the Centre of the Classroom**
Co-Investigators:	n/a
Faculty Supervisor: *(if applicable)*	Dr. Marion Terry, Brandon University
Research Ethics File #:	22530
Date of Approval:	September 20, 2019
Ethics Expiry Date:	September 20, 2024

Authorizing Signature:

Christopher D. Hurst

Mr. Christopher Hurst
Chair, Brandon University Research Ethics Committee (BUREC)

Appendix C

Faculty of Education

270 18th Street
Brandon, Manitoba
Canada R7A 6A9

phone 204-727-9626
brandonu.ca

September 21, 2019

XXXXXX
XXXXXX
XXXXXX

RE: Permission to Conduct Research Study

Dear XXXXXX:

I am writing to request permission to conduct a research study within the XXXXXX School Division. I am currently enrolled in the Master of Education (educational administration) at Brandon University, and am in the process of writing my master's thesis under the supervision of XXXXXX. The study is entitled "Teacher Metacognition: Teacher as Curriculum Maker with Metacognition at the Centre of the Classroom."

I am hoping that you and the XXXXXX School Division will grant me permission to contact principals/designates to assist in inviting 3-5 teachers to complete two months' worth of documentation. This study will examine teacher awareness and teacher use of metacognitive practices. This narrative inquiry research will create a story of each participant's metacognitive journey through conversation and analysis, considering the following field texts: data obtained by a Metacognitive Awareness Inventory (MAI) (Schraw & Dennison, 1994) (completed electronically), a prelude reflective journal (1000-word summary of metacognitive understanding with prompts provided (approximately 30 minutes), transcripts of interviews (approximately 30-60 minutes per participant), and participant reflective journals (optional).

Interested teachers, who have completed Reading Apprenticeship Framework training and who volunteer to participate, will be given a consent form to be signed (copy enclosed) and returned to me as researcher at the beginning of the research process. All data will remain confidential. Should this study be published, all participants will have given consent to the publication and only aggregated results will be documented. No costs will be incurred by either the XXXXXX School Division or the individual participants.

Your approval to conduct this study will be greatly appreciated. I will follow up with a telephone call next week and would be happy to answer any questions or concerns that you may have at that time. You may contact me at my email address: XXXXXX

If you agree, kindly sign below and return the signed form in the enclosed self-addressed envelope. Alternatively, kindly submit a signed letter of permission on your institution's letterhead acknowledging your consent and permission for me to conduct this study within XXXXXX School Division. Please include the names and contact information for the principals/designates that could assist with inviting teachers for this study.

Sincerely,

Barbara Engel
Primary Researcher

Enclosures
Metacognitive Awareness Inventory
Interview Questions and Reflective Journal Prompts
Copy of Participant's Consent Form

cc: XXXXXX, Brandon University Faculty Advisor

Approved by:

_____	_____	_____
Print your name.	Signature	Date

Principal/Designate	Contact Information

Appendix D

<u>Prelude reflective journal</u> (to be used to create 1000-word reflection):
While thinking about the next two weeks of implementing metacognitive strategies in your classroom, please reflect on these prompts and write 1000-word reflective journal. You do not have to use these questions, however if you wish you might choose one or two to activate your writing.

1. **Describe some of the activation activities that you use and explain why you use them.**
2. **What is your expectation of student reading during class time?**
3. **How do you want your own reading to look like in the classroom?**
4. **What are the essential observations you make while students are engaged in reading during your class?**
5. **Describe how you use questioning to activate conversation in a group.**
6. **What do you see or hear that would engage you to start a metacognitive conversation with a student?**
7. **Think of a planning time. How do you pick a strategy and explain why you picked that strategy?**
8. **How do you define metacognition? How do you use it in your classroom?**

<u>Interview questions</u>:

1. **Think about a silent reading time within the past two weeks! Describe the activity in the classroom? What were you doing? What were the students doing?**
2. **Think of a time that you were demonstrating the metacognitive strategy you choose to the class. Share how this demonstration unfolded.**
3. **Think of a specific activation strategy that you have used and tell me the story of how it unfolded in the classroom.**
4. **Thinking about the last two weeks. What did a class conversation look like in your classroom? How do you set the stage for a class discussion?**

5. **Tell me about a time that you read to the class, and included your metacognition. How did that go?**

6. **Think of a time when a student displayed a misunderstanding. What happened? Tell me the story of this memory.**

7. **Imagine that you and your students were having a perfect learning scenario. Tell me what that looks like and feels like for you.**

8. **Think of a time you were demonstrating a debugging strategy. Tell me the story of how that came about and how it unfolded.**

9. **How long have you been implementing metacognition into your classroom routines?**

10. **What are the aspects of implementing metacognition into the classroom that you believe benefit yourself and your students?**

<u>The journal package</u>:

The journal package will be given as an invitation to the participants to make personal journal reflections during the two weeks. The prompts provided with the journal package will include:

- **Do I see patterns in what the students are saying and doing?**
- **Was the strategy I used effective for this assignment?**
- **How did my mindset affect how I approached today's lesson?**
- **Is this strategy improving the learning environment?**
- **Did I do an effective job of communicating my thinking to my students?**
- **Have I demonstrated my strengths and weakness to my students?**
- **How am I using my strengths to benefit my students in their metacognitive journey?**

Appendix E

BRANDON UNIVERSITY DEPARTMENT OF EDUCATION
CONSENT TO PARTICIPATE IN A RESEARCH PROJECT

Project Title: Teacher Metacognition: Teacher as Curriculum Maker with Metacognition at the centre of the Classroom.

Principal Investigator: Barbara Engel, Teacher at Strathmillan School, St. James-Assiniboia School Division, Winnipeg, MB; Graduate student at Brandon University, Department of Ed.
204-999-8049 bengel@sjsd.net

Faculty Advisor: Dr. Marion Terry, Professor of Education at Brandon University, Brandon, Manitoba; 204-727-9793

Site:_____, MB

Purpose: This is an invitation to participate in a research study under the direction of Barbara Engel, graduate student at Brandon University. The purpose of this study is to explore how the teachers' understanding of metacognition influences the development of metacognitive strategies and the metacognitive conversation as these are implemented in their classrooms. The results of this study may influence teachers' perspectives and goal setting, improve teaching methods, help students come to a better understanding of their metacognition, create better relationships, and ultimately improve student achievement.
Procedures: 5 teachers will participate in the research project. The total time the researcher will be in contact with the teacher participants is approximately two months. This study will examine teacher awareness and teacher use of metacognitive practices. This narrative inquiry research will create a story through conversation and analysis, considering the following field text: data obtained by a Metacognitive Awareness Inventory (MAI) (Schraw & Dennison, 1994) (completed electronically), a 1000-word summary of metacognitive understanding with prompts provided (approximately 30 minutes), transcripts of an interview (approximately 30-60 minutes per participant), and participant reflective journals (optional). All interviews and reflections will be recorded digitally, by paper or by audio.
Possible Risks/ Discomforts: We are dealing with teachers and their daily routines. Exploring and explaining how one is thinking means that teachers are taking risks; however, this study is deemed minimal risk because expectations are clear and safety procedures around keeping records and writings anonymous will be followed. Teachers may opt out at any time, because their participation is voluntary. Recognition that everyone in the study is at a different place of understanding is a part of the individual story while creating this narrative inquiry.

Possible Benefits: This research may lead to stronger teacher practice, a better understanding of metacognition, higher student engagement, and more effective teaching methods – all of which may increase student achievement.

Voluntary Participation: Your participation in this study is voluntary, and you may decide not to participate without penalty or loss of benefits at any time. If you choose to leave the study, please contact Barbara Engel at the above contact information.

Financial Considerations: There are no financial considerations for this study.

Data Collection: The data will be collected via audio, digitally transcriptions of interviews, and other written documents such as journals. The interview transcripts will be sent to the individual participants for additions or changes before Barbara Engel, Principal Investigator, has prepared the final report.

Confidentiality: The researcher will store all data digitally and in written form in a secure fashion. All consent forms will be kept separate from the data collected. Barbara Engel will be the sole investigator to use all or any materials. Pseudonyms will be used to protect individual identities in the final report.

Publications: The primary publication will be Barbara Engel's thesis report. By signing this consent form, you are also giving her permission to share the research results in the form of academic papers, conference reports, and other presentations. At no time will individual identities be disclosed.

If you should have any questions about the above research project, please contact the principal investigator, Barbara Engel at bengel@sjsd.net. You may also call at 204-888-8049.

You may also contact the supervisors of the primary investigator: Dr. Marion Terry, Brandon University 204-727-9793; or BUREC at 204-727-9712; burec@brandonu.ca

Statement of Consent:

"I have read the above description of the research study, and I understand it in full. I have been informed of the risks, and benefits involved. All of my questions have been answered to my satisfaction. To my understanding, any further questions I may have will be answered by the primary researcher of this study. I voluntarily agree to participate in this study. By signing this form, I have not waived any of my legal rights to which I would otherwise be entitled. I will be given a copy of this statement."

_____	_____	_____
Print Name of Subject	**Signature**	**Date**

_____	_____	_____
Print Name of Investigator	**Signature**	**Date**

Reference

Remler, D. K., & van Ryzin, G. G. (2015). ***Research methods in practice: Strategies for description and causation*** **(2nd Ed.). Thousand Oaks, CA: Sage.**

Appendix F

Letter to Principal/Designate

[BU Letterhead]

September, 2019

RE: Request for teacher names and email addresses for potential participation in a research study

Dear Principal/Designate:

Your school division superintendent has forwarded your name to me. I am writing to request your recommendation of teacher names that have participated in the Reading Apprenticeship training. I am currently enrolled in the Master of Education (educational administration) at Brandon University, and am in the process of writing my master's thesis. The study is entitled "Teacher Metacognition: Teacher as Curriculum Maker with Metacognition at the Centre of the Classroom."

I hope that you can help me to recruit 5 teachers to complete two months' worth of documentation. Interested teachers, who volunteer to participate, will be given a consent form to be signed (copy enclosed) and returned to the primary researcher at the beginning of the research process. Therefore, an email address is required for me to forward this communication. By signing this letter, you are giving me permission to contact the individuals listed.

The total time I, the researcher, will be in contact with the teacher participants is approximately two months. This study will examine teacher awareness and teacher use of metacognitive practices. This narrative inquiry research will create a story through conversation and analysis considering the following field text: data obtained by a Metacognitive Awareness Inventory (MAI) (Schraw & Dennison, 1994) (completed electronically), a prelude reflective journal (1000-word summary of metacognitive understanding with prompts provided (approximately 30 minutes), transcripts of interviews (approximately 30-60 minutes per participant), and participant reflective journals (optional).

All data will remain confidential. Should this study be published, all participants will have given consent to the publication and only aggregated results will be documented. No costs will be incurred by either the xxxxxxxxxx School Division or the individual participants.

If you have names of teachers who have participated in the Reading Apprenticeship training and you think that they would be interested in participating in this research, please contact me at my email address: ENGELB77@BrandonU.CA.

Sincerely,

Barbara Engel
Primary Researcher

Enclosures

Metacognitive Awareness Inventory

Interview questions

Copy of Participant's Consent Form

cc: Dr. M. Terry, Brandon University Faculty Advisor

Approved by:

_____	_____	_____
Print your name.	Signature	Date

I am asking for 10 names, and I will randomly pick 5. Choosing from 10 names will ensure confidentiality, because I am the only person who will know which individual teachers have consented.

Teacher Name	Email Address

Appendix G

Participant's Letter of Invitation

[BU Letterhead]

September, 2019

RE: Request to participate in Master's Thesis research.

Dear :

I am writing to request your participation in a research study within xxxxxxxxxx School Division. Your principal/designate has forwarded your name to me because of your participation in the Reading Apprenticeship training. I am currently enrolled in the Master of Education (educational administration) at Brandon University, and am in the process of writing my master's thesis. The study is entitled "Teacher Metacognition: Teacher as Curriculum Maker with Metacognition at the Centre of the Classroom."

I hope that you will consider being a part of a collection of documentation to create story. Due to the nature of this study, only your teacher voice will be recorded. I have attached a consent form to be signed and returned to me if you are willing to participate.

The total time that I will be in contact with you is approximately three weeks to two months. This study will examine teacher awareness and teacher use of metacognitive practices. This narrative inquiry research will create a story through observations and analysis considering the following field text: data obtained by a Metacognitive Awareness Inventory (MAI) (Schraw & Dennison, 1994) (completed electronically), a 1000-word summary of metacognitive understanding with prompts provided (approximately 30 minutes), transcripts of interviews (approximately 30-60 minutes), and participant reflective journals (optional).

This research will create a story of your individual internal dialogue, providing data that will investigate metacognitive understanding within teachers. The results of this study will remain confidential, because pseudonyms will be used to protect individual identities. Should this study be published, all participants will have given consent to the publication and only aggregated results will be documented. No costs will be incurred by either the School Division or the individual participants.

Your approval to be a participant will be greatly appreciated. I will follow up with a telephone call next week and would be happy to answer any questions or concerns that you may have at that time. You may contact me at my email address: ENGELB77@BrandonU.CA.

If you agree, kindly sign the consent form and return it in the enclosed self-addressed envelope.

Sincerely,

Barbara Engel
Primary Researcher

Enclosures

Consent Form

cc: Dr. M. Terry, Brandon University Faculty Advisor

Appendix H

Participant's Letter (Phase One)

[BU Letterhead]

Date

Participant's name
Participant's address
xxxxxx
xxxxxx

RE: Phase One of Teacher Metacognition: Teacher as Curriculum Maker with Metacognition at the Centre of the Classroom

Dear :

Thank you for volunteering to participate in the study entitled Teacher Metacognition: Teacher as Curriculum Maker with Metacognition at the Centre of the Classroom.

I realize your motivation is for the learning within your students, and it is my hope that together you and I will also learn and grow, as we better understand how teacher metacognition can impact our personal practical knowledge.

The purpose of this study is to capture your internal dialogue so that we can create your individual metacognitive story.

The process will require you to complete the following:

- Follow this link and complete a Metacognitive Awareness Inventory (MAI) (MIA Electronic Survey Link) this will take you approximately 4 minutes.
- When your MAI is completed electronically, I will contact you to set up the two week implementation (Phase two).
- Prelude reflection: Write a 1000 words or less summarizing the strategies that you have used/are using and a brief explanation of why you have chosen to use these strategies. Email this summary to me at bengel2b9@gmail.com. Prompts for the reflection are provided.

Again, thank you for your participation; I look forward to meeting you!

Barbara Engel
Teacher and Graduate Student at BU
19 Peary Cres.
Winnipeg, MB
R3K 0P9

Enclosures
Prompts for Prelude Reflection

Appendix I

Participant's Letter (Phase Two)

[BU Letterhead]

Date

Participant's name
Participant's address
xxxxxx
xxxxxx

RE: Phase Two of Teacher Metacognition: Teacher as Curriculum Maker with Metacognition at the Centre of the Classroom

Dear :

Thank you for your commitment to sharing your metacognitive journey. Phase Two of the research has the goal of collecting your metacognitive reflections as you implement your choice of metacognitive strategy(ies) within your classroom.

The process will require you to complete the following:

- Pick one or two metacognitive strategies from the list included. If you have a strategy that is not on the list please email me at bengel2b9@gmail.com to confirm the strategy(ies) you wish to implement.
- When you have made your selection, implement the strategies in the routines of your classroom for two weeks.
- Reflective Journal (Optional) During these two weeks, I invite you to journal using the prompts provided in the reflective journal attachment (or you may use free style). This is optional as I believe that this writing can assist you in tracking your thinking, however, I also understand that journaling may not be a routine in your life. If you do decide to journal, please know that it can be in free form. This writing may help you make other decisions and it may help attain positive or negative attributes that can be of great interest in this study. You may wish to complete all prompts or only the ones that you make a connection with. The intent of the journal is to also benefit you, as well as help give more insight to your metacognitive story for this research. Reflective Journals will be collected during interview appointments or may be emails electronically to the above email.
- Link to make an interview date on Doodle.

Again, thank you for your participation; I look forward to our ongoing work together!

Barbara Engel
Teacher and Graduate Student at BU
19 Peary Cres.
Winnipeg, MB
R3K 0P9

Enclosures

List of strategies
Reflective journal prompts

List of Strategies

Metacognitive Strategies

Metacognitive strategies include having purposeful conversations around reading strategies such as previewing the text, setting a purpose for reading, connecting to prior knowledge, predicting new learning, and developing new vocabulary. During a reading, strategies include monitoring one's comprehension, determining main ideas and details, making double-entry journals, and visualizing. After-reading strategies include organizing information, classifying information summarizing new learning, making and supporting inferences, and drawing and supporting conclusions (Robb, Baumann, Fuhler, & Kindig, 2005). Schoenbach, Greenleaf, and Murphy (2012) explore how this process of talking or recording about one's thinking demystifies the reading progress (p. 22). This analogy taps into personal observations when Schoenbach et al. proclaim, "Most of what happens with texts in classrooms gives students the mistaken impression that reading comprehension happens by magic" (p. 22). Metacognitive conversations and strategies help students see "what happens inside the mind of a more proficient reader, someone who is willing to make the invisible visible by externalizing his or her mental activity" (pp. 22-23). Specific metacognitive strategies used in this study that activate the metacognitive funnel are as follows: talking to the text, think-a-loud, double-entry logs, and LINK (list, inquire, notes, know).

The Metacognitive Funnel

The metacognitive funnel is an excellent metaphor that helps students and teachers "think about and talk about the ways readers' attention may shift as they read any given text" (Schoenbach et al., 2012, p. 128). The funnel demonstrates the ways an individuals' metacognitive awareness increases as they become more aware of their thinking while they engage in reading.

Directing the students to focus on reading starts with the teacher modelling various strategies that help to focus the students' awareness. These strategies can be as simple as probing questions or, as the RAF supports, these strategies become the reading routines within the classroom. An example of a probing question could be "This map might help me understand the content of the paragraph next to it!" An example of a reading routine that helps to focus the students' awareness is a double-entry reading log (which is defined later). With the metacognitive funnel in mind, the teacher intentionally plans to build the repertoire of reading strategies throughout the school year, with the hope that the students begin activating the thinking awareness more independently as the year progresses.

Talking to the Text

Talking to the text is a routine that makes time for the students to individually read, and record their thinking before sharing with a small group. The teacher first must model talking to the text by speaking his/her thinking while recording on the text page and using a document reader so that the learners can watch the process of recording thoughts. The students then record their thinking by writing in the margins, circling important words or words that confuse, asking questions, or making predictions. The reader can make text-to-text connections; they can make clarifications; they can make markings that point out confusion so that when they talk to a group about the reading. These annotations can help guide their metacognitive conversation that will lead to a deeper comprehension of the text.

Think-a-loud

Think-a-loud inquiry is a routine that requires a pair of learners to engage in reading together. While one person reads and talks about the reading and his/her thinking, the partner records what is said on a copy of the text. The pair then join with another pair, and together the four learners discuss the reading by having the recorder share what the individual readers thought while they were reading. Then the readers clarify or add more insight.

Double-entry Logs

Double-entry logs are writing routines that have learners record their thinking while they read, on a separate paper that has two columns: the left column is for recording the evidence (what they saw, heard, or read – such as a quotation) and the right column for recording their thinking, reasoning, or question. The double-entry logs promote critical thinking by tracking the learners' thinking as they read. The repeated use of double-entry logs promotes awareness of the learners' thinking processes, and the logs also support the teacher's ability to track the progress of the learners' reading strategies.

LINK

LINK is an acronym for List, Inquire, Notes, Know, which is a group discussion pre-reading and during-reading strategy that has the learners chunk their thinking and record it based on group and individual work. The first step is to divide the class into groups of about four students, and just as the acronym says, have them **L**ist what they already know about the given topic. After this discussion around the list, the teacher then gives the students time to write down what they know. This solitary writing time is essential for making connections to the students' schema. Next, the group members ask each other questions about what was listed (**I**nquire). Then the learners record all the questions. Next, the students silently read the selected text and annotate while they read. After reading, the group comes together again, and using the inquiry questions looks for the answers within the reading to discuss the connections made. For example, teachers may prompt the students by saying, "Look for answers to our inquiry questions, or connections to what you already know or heard about in our discussion, and record new questions that arose as you read." This discussion is then followed by the individual students making **N**otes.Finally, the teacher prompts the learners to think and record what they now **K**now about the topic. The teacher encourages the learners to compare their developing understanding now, after the discussion and reading, to what they knew before the discussion and reading. The learners then write a short explanation describing how their understanding has changed as a result of the discussion and readings

Appendix J

Participant's email (Phase Three)

Date

Participant's name
Participant's address
xxxxxx
xxxxxx

RE: Phase Three of Teacher Metacognition: Teacher as Curriculum Maker with Metacognition at the Centre of the Classroom

Dear :

Thank you for your commitment to sharing your metacognitive journey. Phase Three of the research has the goal of making the final collection of your metacognitive reflections. The process will require you to complete the following:

- Confirm your interview time via Doodle link. If you wish to have a face-to-face interview, please select a private room for the allotted time to reduce or eliminate interruptions (20-30 minutes will be required). <<Doodle link here>>

After we have completed the interview, the collection of data is complete! I have immense gratitude for your willingness to share your metacognitive voice.

Barbara Engel
Teacher and Graduate Student at BU
19 Peary Cres.
Winnipeg, MB
R3K 0P9

Appendix K

Participant's Letter (Phase Four)

[BU Letterhead]

Date

Participant's name
Participant's address
xxxxxx
xxxxxx

RE: Phase Four of Teacher Metacognition: Teacher as Curriculum Maker with Metacognition at the Centre of the Classroom

Dear :

Thank you for your continued commitment of sharing your metacognitive journey. Phase Four of the research has the goal of sharing your metacognitive reflections by allowing you to read the direct transcripts of your interviews, journals (if provided), and results of your MAI results.

This communication is to ensure trust between you, the participant and myself. As the principle investigator of this research, I am approaching the telling of your metacognitive story through the lens of a narrative inquirer. The inspiration of sharing of the transcriptions comes from Clandinin and Connelly's (2000) book *Narrative Inquiry*.

> Part of the narrative inquirer's doubts come from understanding that they need to write about people, places, and things as *becoming* rather than *being*. Their task is not so much to say that people, places and things are this way or that way but that they have a narrative history and a moving forward. The narrative research text is fundamentally a temporal text – about what has been, what is now, and what is becoming. (p. 146)

Therefore, it is with continued gratitude that I conclude my communication with you by saying thank you for your insights. I would be happy to share the finished thesis with you if you are interested.

Again, thank you for your participation; It has been a pleasure listening and learning with you!

Barbara Engel
Teacher and Graduate Student at BU
19 Peary Cres.
Winnipeg, MB
R3K 0P9